

47. It is not yet recognized that much of the work of these Committees has to be performed by agricultural officers, and it is most frequently left to such officers to bring forward proposals for consideration. One would welcome more action by unofficial members. The Committees are provided in order that the agricultural development of specified districts may receive close and careful investigation, and it should not be expected that all proposals should originate from the agricultural officers on the Committees.

AGRICULTURAL EDUCATION.

48. The number of students at the School of Tropical Agriculture, Peradeniya, at the end of the year, was as follows:—First-year 21, second-year 12. The prize day of the school was March 29, 1924, at which the Chief Justice, Sir Anton Bertram, presided, and Lady Bertram distributed the prizes. The report read at this prize distribution was as follows:—

The prize-givings of this school have usually been held in the latter half of the year, but it has been thought advisable that they should in future follow immediately after the final examination. The awards and certificates will therefore be distributed to those students who have just completed their second year's course, whilst medals and certificates will be awarded to the teachers of vernacular schools who have had a special course of training for one year.

The number of students in the English Class is 27—15 second-year students who have just completed their course and 12 first-year students. In addition there are 12 teachers from Government vernacular schools for the special one year's course in the vernacular. For the next course 20 students have been selected from 34 applicants. Two of the students for the next course are coming from the Northern Shan States in Burma, having been specially selected by the Superintendent of these States who desires that they should receive special training in the cultivation and manufacture of tea.

The work of the school has been under the supervision of the Divisional Agricultural Officer, Central, and the various lectures and field work have been carried out under the instruction of Mr. J. C. Drieberg, Farm School Officer, Mr. Jayasundara, an old student of the school, and Mr. Wickramasekera until June 15 last and subsequently Mr. Jansz, another old student of the school. Special lectures have also been given by Mr. Auchinleck, Mr. Petch, and Mr. Joachim, and by officers of the Entomological, Mycological, and Economic Botany divisions of the Department, and special attention is given to the field cultivation of paddy, tea, rubber, cacao, and coconuts, and to the growing of various food crops on those plots which are worked by the students themselves. A beginning has been made with poultry-keeping, and the results so far obtained have been encouraging. Bee-keeping has not made as much progress as I could have hoped for, but some students have shown a keen interest in this work. The establishment of a small instructional dairy is being undertaken. Specially selected Scind cattle have been secured from India, and are housed temporarily on the Experiment Station, pending the completion of the buildings which have been promised by the Public Works Department for May next. It is intended to run this dairy on commercial lines, and to give students at the school practical experience in animal husbandry, and especially in the feeding and handling of cattle.

The further extension of the practical training for students of the school has been made possible by the offer by Gate Mudaliyar A. E. Rajapakse of special training to passed students of the school in coconut cultivation upon his estate at Puttalam. One student has already passed through this special course, and two others are at present on the estate. The thanks of the school are due to Mudaliyar Rajapakse for this practical assistance, and it is hoped that other estate owners will come forward with further offers of training in actual estate work for the passed students of the school.

A new line of work undertaken by the students in the last term has been the study of agricultural economics in a village near Peradeniya. Periodic visits were made to the village in the company of a member of the staff with the object of obtaining first-hand information regarding the economic condition of the inhabitants and of the state of the agriculture of the village. This work has been inspected by the Director of Statistics, and he was pleased with the type of inquiry carried out and the interest shown therein by the students. The instruction in the school has been modified somewhat in the past two years so as to bring the students into the closest possible touch with the practical side of agriculture. Students are now being required to do a greater amount of actual work in the field and to undertake in the second year definite works of responsibility. The examination results this year have not been up to the usual standard in Chemistry and Botany. Two first classes have been awarded, and one second class, 5 pass certificates, and 6 partial certificates. Those students who come to the school with good educational qualifications have maintained the examination standards of previous years, whilst the others, with lower educational qualifications, have been unable to do so. All students are, however, leaving the school better equipped in practical agriculture than students did formerly.

The annual tour of the school took place early in January in Colombo and Negombo, and the places of agricultural interest visited were: the Manure Works of A. Baur and the Commercial Company, the Government Dairy, Sir H. M. Fernando's farm at Mattakkuliya, the Wester Seaton Dairy at Negombo, the Alexandra Coconut Trial Grounds, Mr. J. D. Van der Straaten's Fibre and Desiccating Mills, Messrs. Seneviratne's Oil Mill, Palugaswewa estate, Puttalam, the Sewage Treatment Works, the Colombo Gasworks, the Ice and Cold Storage Co., the Observatory, the Spinning and Weaving Mills, and the Hewavitarane Weaving School. The best thanks of the school are tendered to the respective proprietors and managers of these establishments for their courtesy in receiving the students and taking them over the works. In every case the visit was of both interest and profit to the students. While in Negombo the students were the guests of Gate Mudaliyar Rajapakse and of Mr. J. E. P. Rajapakse, to whom the school tenders its grateful thanks.

There has been a demand in some quarters that this school should do work of a much higher standard, even up to University standard. This would not be possible except by students with educational qualifications up to Matriculation standard. Such demands have been made by persons who have a complete misconception of the objects of this Farm School at Peradeniya and of the school which will be opened next year for the Tamil districts at Jaffna. These schools are designed for an essentially practical training in agriculture and the sciences that underlie agriculture. They aim at providing the sons of the landowners with a knowledge which will enable them to develop their lands and to deal with the various pests and diseases which affect their crops. An Agricultural College of University status will undoubtedly have to be established in Ceylon as an institution affiliated to the University of Colombo, but such an institution will require a staff of specialists which will equal in number that staff provided for the Imperial College of Agriculture in the West Indies where there are seven Professors in addition to Lecturers and Demonstrators. The Peradeniya school was always intended as a middle school of agriculture, and has been designed on lines which have been successful in other countries in providing a practical training for the sons of agriculturists. It does not aim at a University standard.

The training of the teachers from the Government vernacular schools has been under the charge of Mr. C. Wickremaratne. The examination results have been good, and the work of these teachers throughout the whole of their course has been excellent. Their practical work on plots has been very good throughout. Those teachers who had previously passed through the Training College, Colombo, have made the most progress, and observation lessons on agricultural subjects have shown clearly the value of this earlier training.

The school tenders its thanks to the donors of prizes, by the offer of which they show their appreciation of the work being done here, and at the same time encourage the work of students. His Excellency the Governor has again given his prize for general efficiency in Practical Agriculture; and Gate Mudaliyar A. E. Rajapakse continues to offer a gold medal for the best all-round student of the course. The other gentlemen who have kindly given prizes are Sir Solomon Dias Bandaranaike, Sir H. Marcus Fernando, Mr. H. L. de Mel, Mudaliyar V. M. Muttukumaru, Mr. C. E. A. Dias, Mr. J. C. Ratwatte, Dissawe, Mr. Elapata Dissawe, Mr. W. A. de Silva, Mr. Graham Panditasekera, and Muhandiram N. Wickremaratne.

The staff of the school has put in hard work during the year, and I desire to make here special reference to it. I cannot close without a reference to the loss which the Department of Agriculture and this school have incurred by the death of Mr. H. L. van Buuren. Mr. van Buuren was a Lecturer at the school until he was selected for more responsible work in the division of Economic Botany. He throughout took a keen interest in the work of the school, and the Colony has lost a promising agricultural officer by his death.

The Governor's prize goes to Mr. M. S. Bandara who had been selected by Richmond College, Galle, for this special agricultural training, and who returns to Richmond to start the teaching of agriculture in that College. The Rajapakse Gold Medal is awarded to Mr. C. St. J. C. Pereira who has done well in all subjects.

We welcome, you, Sir, again to our prize-giving. This is the third occasion on which you have visited the school. It was opened by you in 1916, and I think you will note the progress that has been made since that year in the equipment of the school. I regret that Mrs. Kindersley is prevented by illness from giving away the prizes and certificates on this occasion, but Lady Bertram has graciously consented to do so.

49. A special course of training for vernacular teachers was also provided for, and twelve selected teachers from Government vernacular schools attended Peradeniya.

50. Work in connection with the buildings for the agricultural school at Jaffna has continued during the year, but they are not yet complete.

51. School garden work on the whole has continued to improve, and it is pleasing to note that an improvement has taken place in the Colombo and Ratnapura Districts.

52. School garden work in the Kurunegala District of the North-Western Province continues to improve year by year, largely as the result of the competition held for the prize offered by the Hon. Lieut.-Colonel T. Y. Wright to school gardens in the North-Western Province.

53. The school gardens in the Southern Division have maintained the standard of efficiency reached during the previous years, and, on the whole, school garden work throughout is improving.

54. There has been an improvement in school garden work in the Central Division, and work is generally satisfactory, but the same cannot yet be said of home garden work which is not so good as it should be. Every endeavour is being made to effect improvement in home gardens, and to secure increased numbers of such gardens. These gardens cultivated by pupils attending vernacular schools are on the increase in many districts, and are receiving their due share of attention. The pupils and teachers in these areas are beginning to realize the value of this extension work, and every endeavour is made by the Department of Agriculture to encourage this side of agricultural education.

55. The number of unregistered school gardens is on the increase, and the question of registering these is receiving close attention; but this is a difficult problem when funds are not readily forthcoming from the District School Committees concerned. This Department is only in a position to maintain school gardens after registration, and the initial equipment for new gardens must be met from District School Committee funds.

56. Large numbers of school gardens require improvement in regard to fences and wells. Invariably the replies of the District School Committees are to the effect that there are no funds available for this necessary work, and consequently many of the school gardens suffer from damage by cattle and from an inadequate water supply. Something will have to be done to remedy this defect in the present organization of school gardens.

57. A large number of registered school gardens in all the divisions were supplied with fresh stocks of implements during the year, and equipments are nearly up to normal requirements.

58. Bee-hives were also supplied to a few schools.

59. Teachers, on the whole, have done good work in school gardens during the year under review, and have maintained an interest in nature teaching.

60. The number of registered school gardens is as follows :—

Central Division	..	159	Colombo District	..	63
Southern Division	..	141	Ratnapura District	..	44
Northern Division	..	63	Badulla District	..	28
North-Western Division	..	96	Batticaloa District	..	38

61. Awards and prizes for school gardens to the value of Rs. 3,043·50 were distributed during the year as follows :—

	Special.	First.	Second.	Third.	Certificates.
Kandy District	.. —	.. 5	.. 8	.. —	.. 15
Matale District	.. —	.. —	.. 5	.. —	.. 5
Nuwara Eliya District	.. —	.. 2	.. 4	.. —	.. —
Kegalla District	.. —	.. 4	.. 8	.. —	.. 15
Kalutara District	.. —	.. 2	.. 5	.. —	.. 9
Galle District	.. —	.. 1	.. 2	.. 7	.. 1
Matara District	.. —	.. 4	.. 8	.. 3	.. 3
Hambantota District	.. —	.. —	.. 1	.. 13	.. 1
Anuradhapura District	.. —	.. 4	.. 11	.. 5	.. —
Jaffna District	.. —	.. —	.. 1	.. —	.. —
Mullaattivu District	.. —	.. 2	.. 1	.. —	.. —
Mannar District	.. —	.. 2	.. 1	.. —	.. —
Colombo District	.. —	.. 3	.. 2	.. 17	.. 5
Trincomalee District	.. —	.. —	.. 1	.. 4	.. —
Kurunegala District	.. 3	.. 4	.. 5	.. 12	.. —
Chilaw-Puttalam District	.. 2	.. 2	.. —	.. 7	.. —
Ratnapura District	.. —	.. 2	.. 4	.. 13	.. 3
Province of Uva	.. —	.. 1	.. 2	.. 9	.. 4
Batticaloa District	.. 2	.. 1	.. 5	.. 3	.. —

62. Awards and prizes for home gardens to the value of Rs. 768 were distributed during the year as follows :—

	First.	Second.		First.	Second.
Kandy District	.. —	.. 40	Hambantota District	.. —	.. 12
Kegalla District	.. —	.. 30	Colombo District	.. 11	.. 37
Matale	.. —	.. 20	Kurunegala District	.. 20	.. 28
Nuwara Eliya	.. —	.. 9	Chilaw-Puttalam District	.. 6	.. 6
Kalutara District	.. —	.. 22	Ratnapura District	.. 13	.. 31
Galle District	.. —	.. 12	Batticaloa District	.. 8	.. —
Matara District	.. 1	.. 19	Badulla District	.. 7	.. 6

63. Certificates were also issued to all winners of prizes.

64. Expenditure on implements amounted to Rs. 5,140·34 for the financial year 1923-24, and seeds and plants to the value of Rs. 4,391·38 were also supplied to the school gardens.

65. The Government provided an increased vote of Rs. 12,500 to allow of the further registration of school gardens. These funds will be expended upon the initial equipment for tools and implements—equipment which in the past has been provided by District School Committees, but which they cannot further provide owing to the heavy demands for building purposes.

CO-OPERATION.

66. Twenty-four new societies were registered during the year, and the registration of fourteen societies was cancelled—nine for unsatisfactory work. The membership of societies now totals 26,757 and the paid-up share capital amounts to Rs. 238,607. The reserve funds of all societies amount to Rs. 44,603·64.

67. Progress has to be reported in many districts. In the Southern Province, societies are making more rapid progress than in other areas, while in the Batticaloa District of the Eastern Province continued interest in co-operation is being sustained. The Government Agent of this Province continues to foster the movement, and as the result of a conference between him, the Colonial Treasurer, and the Registrar of Co-operative Societies, it has been decided to recommend to Government that further and more detailed attention and assistance should be given to the co-operative movement in Ceylon. As the result of this report, Government has agreed to the amendment of the Co-operative Ordinance, and decided to second Mr. W. H. K. Campbell, C.C.S., as Joint Registrar of Co-operative Societies, and the legislature has sanctioned a vote for him to proceed on deputation to several provinces in India to study co-operation there. Government loans amounting to Rs. 8,400 were given during the year. The amount of Government loans outstanding amounted to Rs. 53,336·80 at the end of the year, in addition to Rs. 132,884·86 advanced to societies through the Batticaloa Paddy Bank. The repayment by members of their overdue loans still requires very close attention. In some districts an improvement has been made, but there are still a number of societies in which the repayment of loans leaves much to be desired.

BOTANIC GARDENS.

68. Full details of the work of the Botanic Gardens are given in Annexure IX. The improvement of the arboretum at Peradeniya has been continued, and several improvements have been made in the drives. Further attention has also been given to the nurseries for economic and ornamental plants. Hakgala Gardens have continued to be improved, and the rock garden is now a centre of attraction. The fernery has also received attention, and a new bulb garden has been opened. The Nuwara Eliya park has also continued to improve, and with the removal of the nursery sheds from the centre of the garden, there will be further space available for flowering annuals. At Henaratgoda certain changes have been made, and the general condition of the gardens improved.

69. A classified list of plants growing in the Royal Botanic Gardens, Peradeniya, has been prepared and will be published during 1925. It is then intended to start card catalogues in each of the gardens, one for the use of the departmental officers and the other for the general public.

SEED DISTRIBUTION AND PUBLICATIONS.

70. Details of the work of this division are given in Annexure X. The demand for seed continues to increase, especially for seed of green manures. The total sales of seed for the year amounted to Rs. 8,566·40, and seeds worth Rs. 3,884·37 were distributed free.

71. The following publications were issued during the year :—

The "Tropical Agriculturist," Vols. LXII. and LXIII.

The "Govikam Sangarawa," Vol. XVIII., Parts 7-12, and Vol. XIX., Parts 1-6.

The "Kamat Tholil Velakkam," Vol. XVIII.

Bulletins of the Department of Agriculture.

No. 69.—Life-history of the Indian Glow Worm.

No. 70.—Guide to the Central Experiment Station, Peradeniya.

Leaflets.

No. 29.—Plantain Root Beetle Borer.

No. 30.—Some Green Manures and Cover Crops.

No. 31.—How to Sow Seeds so as to ensure the Best Results.

EXPENDITURE.

	Rs.	c.		Rs.	c.
Salaries ..	352,060	28	Labour and upkeep, New Peradeniya		
Travelling ..	54,518	26	lands ..	5,090	18
Gardens : Labour and Upkeep :—			Dieting of students ..	8,733	36
Peradeniya Gardens ..	20,997	95	Co-operative Societies :—		
Hakgala Gardens ..	7,718	53	Salaries ..	7,804	0
Henaratgoda Gardens ..	3,123	44	Travelling ..	764	61
Nuwara Eliya Gardens ..	2,079	21	Incidental expenses ..	46	78
Queen's House Gardens ..	3,054	40	Seed Store and Publication Depôt :—		
King's Pavilion Gardens ..	2,925	31	Salaries ..	5,100	0
Queen's Cottage Gardens ..	5,296	75	Seed distribution ..	7,535	54
Temple Trees Gardens ..	1,255	49	Publications ..	10,317	54
The Lodge Gardens ..	595	7	Incidental expenses ..	81	75
Cuddesdon Gardens ..	1,265	91	Special Expenditure :—		
Nursery work in Colombo ..	246	11	Experimental cultivation of tobacco ..	3,978	43
Experiment Stations :—			Grants in aid for agricultural shows		
Peradeniya ..	33,116	37	and competitions ..	6,137	50
Jaffna ..	11,148	84	Training of Secretaries for Co-opera-		
Anuradhapura ..	20,391	1	tive Societies ..	1,130	80
Chilaw Coconut Trial Ground ..	1,860	8	Experiments and demonstrations with		
School and Home Gardens :—			paddy manuring and seed selection	7,308	2
Labour and upkeep ..	9,785	81	Upkeep of additional minor experiment		
Upkeep of library, &c. ..	5,678	63	and demonstration plots ..	9,615	97
Prevention of plant pests and diseases	1,223	98	Cotton experiments ..	9,483	77
Incidental expenses ..	2,240	58	Equipment of Chemical Laboratory ..	2,596	66
Agricultural Education :—			Maintenance of Davies' tree, Katu-		
Salaries ..	8,231	50	gastota ..	226	63
Scholarships ..	2,602	14	Dairy establishments, School of		
Travelling ..	289	99	Tropical Agriculture ..	7,481	72
Lecturing fees ..	1,468	25			
Incidental expenses ..	1,036	68			
Laboratory expenses ..	787	35			
			Total ..	648,431	18

72. This expenditure may be itemized under the following sub-heads :—

	Rs.	c.
Administration ..	39,532	11
Research : Scientific investigations, including Central Experiment		
Station ..	188,022	60
Botanic Gardens, including gardens of Governor's and Colonial		
Secretary's residences ..	98,541	63
Agricultural Education, including School of Tropical Agriculture,		
school gardens, grants to shows and competitions ..	51,644	48
Divisional experiments, including special expenditure on tobacco		
cultivation, experimental cultivation of cotton, and Experiment		
Stations in Jaffna and Anuradhapura, and other experimental plots	237,909	34
Co-operative Societies ..	9,746	19
Seed Store and Publication Depôt ..	23,034	83
	Total ..	648,431 18

RECEIPTS.

73. The following is a statement of receipts for the financial year 1923-24 :—

	Rs.	c.
1. Sale of seeds and publications ..	26,586	61
2. Botanic Gardens, Peradeniya ..	2,727	78
3. Botanic Gardens, Hakgala ..	1,174	2
4. Botanic Gardens, Henaratgoda ..	852	20
5. Experiment Station, Peradeniya ..	20,004	14
6. Experiment Station, Balangoda ..	71	24
7. Experiment Station, Godakawela ..	89	21
8. Northern Agricultural Division :—		
Experiment Station, Anuradhapura ..	2,980	28
Experiment Station, Jaffna ..	2,414	96
Experiment Station, Trincomalee ..	247	29
9. Central Agricultural Division ..	5,642	53
10. Southern Agricultural Division ..	11,290	59
	7,416	0
	Total ..	75,854 32

74. These receipts may be itemized under the following heads and sub-heads :—

	Rs.	c.
Head 3, Fines and Forfeitures ..	162	90
Head 4, School Fees, School Books, and Stationery ..	9,198	50
Head 4, Sundries ..	18,995	2
Head 5, Other Collections ..	28	90
Head 6, Railway Receipts ..	1	35
Head 8, Sale of Old Stores and Cast Animals ..	298	86
Head 8, Sundries ..	18	0
Head 9, Miscellaneous Land Revenues ..	47,150	79
	Total ..	75,854 32

PRESS COMMUNIQUÉS.

75. The following *communiqué* was sent to the Press during the year :—Cotton at Ambalantota.

LEGISLATION.

76. The following Ordinance affecting agriculture was passed by the Legislative Council during the year :—“The Plant Protection Ordinance, No. 10 of 1924.”

77. The legislature postponed the consideration of the Coconut Experiment Station Ordinance, as members were not unanimous as to the best methods of financing the work of the Proposed Coconut Research Scheme.

78. Departmental examinations were held in the months of January and July as follows :—

January.

Probationers' Examination (Agricultural Branch and Vernacular Instructors' Examination).

Probationers' Examination (Research Branch).

Junior Departmental Examination (1—Agricultural, 2—Research, and 3—Field Branches).

July.

Probationers' Examination (Agricultural Branch).

Probationers' Examination (Research Branch).

79. The following officers passed the departmental examinations specified against their names :—

January Examination.

1. A. Madanayake ..	.. Junior Departmental, Agricultural
2. P. J. Christoffelsz ..	.. Junior Departmental, Field
3. A. Jayasinghe ..	.. Junior Departmental, Field
4. A. Abeysinghe ..	.. Probationers'
5. A. C. W. Jayawardane ..	.. Probationers'
6. J. C. Abeywardane ..	.. Probationers'
7. P. B. Kapuwatte ..	.. Probationers'
8. T. V. Thamotheram ..	.. Probationers'
9. P. C. Rodrigo ..	.. Vernacular Instructors'

July Examination.

M. B. Boange ..	.. Probationers'
Walter Perera ..	.. Probationers'

80. The following officers passed the tests in the vernaculars specified against their names :—

January Examination.

1. T. V. Thamotheram ..	.. Sinhalese and Tamil
2. J. A. Rambukpota ..	.. Sinhalese

April Examination.

1. A. C. W. Jayawardane ..	.. Sinhalese
2. P. B. Kapuwatte ..	.. Sinhalese
3. J. C. Abeywardane ..	.. Sinhalese
4. F. Burnett ..	.. Tamil
5. A. Abeysinghe ..	.. Sinhalese and Tamil
6. A. Jayasinghe ..	.. Sinhalese and Tamil
7. P. J. Christoffelsz ..	.. Sinhalese
8. K. S. Arumogam ..	.. Sinhalese and Tamil

July Examination.

1. A. V. Chelvanayagam ..	.. Tamil
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October Examination.

1. E. W. Dias Bandaranayake ..	.. Tamil
2. M. J. A. Karunanayake ..	.. Tamil
3. M. Amarasinghe ..	.. Tamil
4. V. Canagaratnam ..	.. Sinhalese and Tamil
5. M. B. Boange ..	.. Sinhalese

BOARD OF AGRICULTURE.

81. The following appointments were made to the Board during the year :—

Estates Products Committee.

Mr. E. M. Windus *vice* Mr. C. B. Loudan Shand.
 Mr. Felix R. Dias *vice* Sir S. D. Bandaranaike.
 Mr. J. A. Coombe *vice* Mr. R. G. Coombe.
 Mr. J. W. Scott *vice* Mr. A. J. Austin Dickson.
 Mr. R. P. Gorton *vice* Mr. A. A. Franklin.
 Mr. J. Graeme Sinclair *vice* Mr. J. W. Oldfield.
 Mr. R. F. Battams *vice* Mr. A. P. Waldock.
 Dr. W. P. Rodrigo *vice* Mr. H. L. de Mel.
 The Chairman, Low-Country Products Association, *vice* Mr. J. Graeme Sinclair (deceased).
 Mr. A. Bruce *vice* Mr. M. Kelway Bamber.
 Mr. C. C. Du Pre Moore *vice* Mr. A. Dyson Rooke.

Food Products Committee.

Mudaliyar Harry Jayawardane *vice* Mudaliyar S. P. Wijetunga.
 Mr. K. Balasingham *vice* Mr. W. A. de Silva.
 Mudaliyar M. S. Ramalingam *vice* Mr. A. Sabapathy (deceased).

82. The following matters were discussed by the Board of Agriculture and its various Committees during the year :—

Board of Agriculture.

The scope for dairy farming in Ceylon.

Declaration of pests and diseases under the amending Plant Pests Ordinance.

Estates Products Committee.

Progress reports of the Experiment Station, Peradeniya.

Manurial experiments on the Experiment Station, Peradeniya, for 1923.

Rubber manurial experiments on the Experiment Station, Peradeniya, for 1923.

Rubber tapping experiments on the Experiment Station, Peradeniya, for 1923.

Soil erosion.

Yield and growth of *Hevea brasiliensis*

Cacao manurial experiments, Experiment Station, Peradeniya.

Proposals for Coconut Research Scheme.

Tea Research Scheme.

Plant Pests and Diseases Proclamation.

Is calcium cyanamide (nitrolim) a reliable manure for coconuts ?

The possible toxic effect of desmodium on Ceylon soils.

Report on Manuring Coconut Trial Ground.

Report on Alexandra Estate Coconut Trials for 1923.

Deep ploughing and harrowing on coconut plantations.

Is broadcasting superior to ring manuring of coconuts ?

Tortrix in tea.

Moisture in sodium nitrate mixtures.

Revision of the Fertilizers Ordinance.

Nitrate of soda as a manure for tea and rubber in Ceylon.

Helopeltis in tea and best methods of prevention.

Fodder grass trials at the Experiment Station for 1923-24.

Relation of tea soils to quality.

Samples of cacao sent to Messrs. Cadbury Bros., Ltd.

Tortrix investigation.

Sample of made tea from Buitenzorg, Java.

Food Products Committee.

Report on "Kudumetta" weed.

Sun Hemp trials at Nalanda.

Destruction of prickly pear.

Preparation of list of Crown lands available for agricultural purposes.

YEARBOOK.

83. A further number of the Yearbook, containing details of the main lines of technical work accomplished by the Department during the year 1924, was prepared at the end of the year ready for issue in March, 1925. The contents of this Yearbook are as follows :—

Introduction.

The control of the tea tortrix.

The control of shot-hole borer of tea.

Some observations on a "Witches' Broom" disease of tea.

Brown bast census.

Inoculation experiments with *Phytophthora faberi* Maubl.

The kernel of the coconut and its oil.

Further notes on some of the caterpillars attacking coconut leaves.

A thread blight on coconuts.

Cover crops.

Small holders cotton-growing scheme, Hambantota District.

Observations on the occurrence of bunchy top disease.

Observations on a plot of plantations affected by the bunchy top disease at Peradeniya.

Additional notes on rats.

Some beetle pests of cucurbits in Ceylon.

A fruit of rot chillies.

Groundnut cultivation in the Jaffna District.

STAFF CHANGES.

84. It is with great regret that I record the death in England on September 21, owing to a motor accident, of Mr. M. Kelway Bamber, the Consulting Agricultural Chemist of this Department.

85. The following staff changes took place during the year :—

(1) The Hon. Mr. F. A. Stockdale left for England on leave on June 12; Mr. T. Petch, Botanist and Mycologist, acting.

(2) Mr. M. Park, who was seconded for service in the Ceylon Rubber Research Scheme as Mycologist, reverted to the Department and assumed duties as Assistant Mycologist on January 1.

(3) Mr. T. H. Parsons, Curator, Royal Botanic Gardens, Peradeniya, who was away on leave, returned and resumed duties on January 1.

(4) Dr. J. C. Hutson, Entomologist, returned from leave and resumed duties on March 11.

(5) Mr. T. H. Holland, Manager, Experiment Station, Peradeniya, left for England on leave on August 6; Mr. H. A. Deutrom acting.

(6) Dr. C. H. Gadd, Assistant Mycologist, who had been away on leave, returned and assumed duties as Acting Botanist and Mycologist on August 25 and relieved Mr. M. Park, Assistant Mycologist, who had acted as Acting Botanist and Mycologist from June 12.

(7) Mr. J. J. Nock, Curator, Hakgala Gardens, Nuwara Eliya, left for England on leave on September 3; Mr. T. H. Parsons acting.

86. The following appointments took place during the year in the Clerical, Agricultural, Research, and Field Staffs of the Department:—

Clerical.—Mr. S. K. Sadashivam from Fiscal's Office, Jaffna, to Head Office, from January 1, *vice* Mr. M. Rasiyah transferred; Mr. R. R. Samarasinghe as Clerk to Secretary, Co-operative Societies, from January 1; Mr. D. H. Wannigama as Clerk, Head Office, from March 1, *vice* Mr. S. K. Sadashivam transferred; Mr. A. A. W. Goonewardane as Clerk to Manager, Experiment Station, Anuradhapura, from March 1; Mr. J. H. A. Alagaratnam as Clerk, Head Office, from April 15, *vice* Mr. K. Nagalingam transferred; Mr. K. Ponniah as Clerk to Divisional Agricultural Officer (Central), from June 1, *vice* Mr. M. B. W. Palipane transferred; Mr. A. Mandalanayagam as Clerk to Secretary, Co-operative Societies, from July 15, *vice* Mr. S. V. Solomons transferred; Mr. S. C. D. Krishnapillai as Head Clerk, Southern Division, from November 10, *vice* Mr. D. P. Jayatillake transferred.

Agricultural.—Mr. V. Dharmadasa as Agricultural Instructor, Dandagamuwa, from January 1; Messrs. V. L. de Silva, M. W. Jayasuriya, and D. J. Welaratne as Probationers from July 1; Mr. W. P. Karannangoda as Probationer from November 10, *vice* Mr. K. T. E. de Silva resigned.

Research.—Messrs. L. J. P. Perera, T. J. Jayaratnam, and M. P. D. Pinto as Probationers from January 1.

Field.—Consequent on the appointment of Mr. H. A. Deutrom to act as Manager, Experiment Station, Peradeniya, Mr. T. B. Ranaraja, Foreman, Experiment Station, Peradeniya, was appointed to act as Assistant Manager, Experiment Station, Peradeniya, from August 6.

87. The following transfers took place during the year in the Clerical, Agricultural, Research, and Field Staffs of the Department:—

Clerical.—Mr. M. D. H. Perera, Clerk to Manager, Experiment Station, Anuradhapura, to Head Office from March 10.

Agricultural.—Mr. J. A. Alles, Agricultural Assistant, Southern Division, to the School of Tropical Agriculture, Peradeniya, as Lecturer from May 5; Mr. M. J. A. Karunanayake, Agricultural Instructor, Galle, to Matara, and Mr. H. C. Peiris, Agricultural Instructor, Matara, to Galle from May 1; Mr. T. K. D. Samarasinghe, Bee-keeping Instructor, from Peradeniya to Kegalla from June 1.

Research.—Mr. R. A. Cameron, Sub-Inspector, Plant Pest Inspectorate (Southern), to the Central Division, and Mr. Jubert de Silva, Probationer, Plant Pest Inspectorate (Central), to the Southern Division, from January 1.

Field Branch.—Mr. D. W. K. Goonewardane, Gardener, King's Pavilion, Kandy, as Gardener, Queen's Cottage, Nuwara Eliya, and Mr. R. Siriwardene, Gardener, Queen's Cottage, Nuwara Eliya, as Gardener, King's Pavilion, Kandy, from May 1; Mr. P. G. Saminathan, Foreman, Experiment Station, Anuradhapura, to Peradeniya Experiment Station, and Mr. S. de Silva, Foreman, Experiment Station, Peradeniya, to Anuradhapura Experiment Station from August 13.

May 16, 1925.

F. A. STOCKDALE,
Director of Agriculture.

ANNEXURES.

I.—REPORT OF THE DIVISION OF BOTANY AND MYCOLOGY.

MYCOLOGY.

Mycological specimens sent in for examination numbered 405. Of these, 157 were tea, 80 *Hevea*, and 23 coconuts. The remaining specimens included diseases of acacia, albizzia, amherstia, apple, areca, betel, bo, breadfruit, brinjal, brownea, cabbage, cacao, caladium, cardamom, cearea, cinnamon, coffee, cotton, crotalaria, dadap, desmodium, eucalyptus, fig, gliricidia, grevillea, guava, hibiscus, jak, leucena, milla, orange, paddy, pea, peach, pita, plantain, rose, sisal, strawberry, tephrosia, tobacco, tomato, and vigna.

Visits have been made by the staff to the Badulla, Bandarawela, Colombo, Galaha, Gampola, Hakgala, Henaratgoda, Kalutara, Katugastota, Kelani Valley, Kurunegala, Matale, Passara, Polgahawela, Ragalla, Rambukkana, Ratnapura, Talawakele, and Uda Pussellawa Districts in connection with the investigation of plant diseases.

HEVEA.

There has been a decrease in the number of *Hevea* specimens submitted for examination during the year. This, however, must be interpreted more as a result of the establishment of the Rubber Research Scheme than that *Hevea* was comparatively free from disease. No new disease has been recorded, nor has any of the known diseases attracted special attention.

Pod rot and leaf fall were again prevalent in the main rubber-growing districts, and a few infected pods were found at Peradeniya where the disease does not usually occur.

Fomes lucidus which is suspected to be the cause of a root disease of *Hevea* has been isolated and grown in pure culture. Two trees have been inoculated with pure cultures of this fungus, but as yet the trees do not appear to have suffered any ill effect. An examination of the inoculated roots will be made later.

TEA.

Mr. Park carried out investigations on the "Witches' Broom" disease of tea. He reports:—

"The "Witches' Broom" disease of tea was first recorded in 1922. The disease is particularly marked in a zone across the Bandarawela basin. Specimens have also been received from the Agrapatna, Pundaluoya, and Hewaheta districts. No organism has constantly been found to be associated with the disease, and it is possible that the affection is due to physiological rather than organic causes. The localization of the disease in the zone across the Bandarawela basin and the absence of marked infection of adjoining areas would indicate that the soil might be one of the primary factors influencing the incidence of the disease."

A larger number than usual of diseased tea seedlings have been submitted for examination, and in all cases the trouble has been caused by soil organisms, eelworms, and fungi. Eelworms have been most prevalent; these cause small swellings of the rootlets, and in severe attacks larger swellings of the tap-roots. A species of *Fusarium* has been isolated from seedlings affected by a "collar rot," but whether this fungus is the primary cause of the disease has yet to be determined. Infection experiments with this fungus and with a species of *Rhizoctonia* are in progress.

A disease of the type known as "Dropsy" or Œdema was reported from one estate. This disease is recognized by the presence of numerous minute swellings on the underside of the leaf along the small veins. These lesions show as translucent areas when the leaf is held up to the light. Microscopic examination showed that the swellings were caused by the enlargement of some of the cells of the leaf, and in this respect the condition is similar to that known on certain glass-house plants. No fungus was found associated with this disease.

COCONUT.

No new diseases of the coconut palm have been reported during the year. Two cases of "bud rot" caused by a species of *Phytophthora* have been investigated, and the fungus has been isolated. The *Phytophthora* which causes bud rot of coconut palms in the Philippines is said to be the same species as that which causes pod rot of cacao. Inoculation experiments carried out in the laboratory, however, indicate that the *Phytophthora* from coconut in Ceylon does not readily pass on to cacao pods.

In a recent publication issued by the Imperial Department of Agriculture in India, it has been shown that "nut fall" of coconuts in certain parts of Malabar is caused by the fungus *Phytophthora omnivora* var. *Areceæ*. During the latter part of the year this fungus has been prevalent in the Kegalla District where it has caused a fall and rot of young arecanuts, and in some cases has attacked the crown resulting in the death of the palm. Areca palms in the vicinity of coconut estates should be watched for the presence of this disease, and on its occurrence should be sprayed with Bordeaux mixture to prevent its spread to the coconut palms.

DADAP.

Mr. Park has carried out investigations on a "die-back" of dadaps. He reports:—

"Specimens have been received from two estates in the Badulla District of a die-back of dadap. The disease appears after lopping. Pruned trees die back, the cortex turning yellowish with olive green water-soaked blisters 1–2 cm. in diameter. These blisters dry up, and the shrivelled yellow-brown cortex separates from the wood. Young shoots may develop from affected branches, but these die back, turning brown and finally black. Infection also takes place through wounds on the branches. Pink-white pustules of spores of a species of *Fusarium* may extrude from the lenticels of the diseased cortex. This fungus was also obtained from the inner diseased tissue and cultures made. Inoculations on the cut ends of lopped branches have produced symptoms similar to those detailed above, and the *Fusarium* reobtained from the dying back areas of the cortex."

MISCELLANEOUS.

Experiments carried out at Peradeniya with the bunchy top disease of plantains indicate that the disease spreads through the soil, probably as a root infection, though the causative organism has not been isolated. All varieties experimented with proved equally susceptible.

Marasmius semustus was found to cause a stem disease of plantains in the Galle District.

Brown root disease was recorded on *Gliricidia*, *Rosellinia arcuata* on fig, *Glomerella gossypii* on cotton, *Sclerotium zeylanica* on crotalaria, *Sclerotium Rolfsii* on *Vigna oligosperma*, a species of *Rhizoctonia* on gum seedlings, *Rhizoctonia* sp. on albizzia seedlings, and a black rot (*Corticium*) on amherstia.

PUBLICATIONS.

Two numbers of the Annals of the Royal Botanic Gardens, Peradeniya, containing a number of papers written by the staff of this division, have been published during the year.

Bulletin No. 68: Yield and Growth in *Hevea brasiliensis* by G. Bryce and C. H. Gadd.

C. H. GADD,
Acting Botanist and Mycologist.

II.—REPORT ON THE WORK OF THE ENTOMOLOGICAL DIVISION.

REPORT OF THE ENTOMOLOGIST.

THE consignments of specimens for examination and report received during the year numbered 133, and included insect pests from all the more important crops and from miscellaneous plants.

During 1924 visits were paid by the staff to estates in the following planting districts :—Haputale, Kurunegala (four times), Kadugannawa (twice), Galle, Kandy (three times), Matale East, Hewaheta, and Maskeliya.

COLOMBO FUMIGATORIUM.

During the year under review 897 packages were treated at the fumigatorium, and, of these, 31 were tea seed, 394 were oranges, and 472 were miscellaneous plants and seeds.

The Entomologist visited the fumigatorium in May and September.

INSECT PESTS.

Tea.

Termites (*Calotermes* spp.) continue to be the most important insect pests of tea in some up-country and low-country districts, and experiments for their control are in progress, but no definite information as to the results of these can be given at present. The scavenging termites (*Termes redemanni*, *T. obscuriceps*) and other species in association with branch canker fungi have been reported or observed to be prevalent in many tea districts. Experiments are being carried out with the object of finding a paint mixture which will protect the bushes from attack by the scavenging termites between prunings, and at the same time check the spread of further decay and encourage healing over, and it is hoped that a suitable mixture will be found eventually.

The investigations in connection with shot-hole borer (*Xyleborus fornicatus*) have been continued by the Assistant Entomologist, and the experiments which are being carried out on an estate near Peradeniya have further indicated that good results may be expected from high cultivation. For fuller information on this subject reference may be made to an article in the Yearbook of the Department of Agriculture for 1925 entitled "The Control of Shot-hole Borer of Tea."

This division is particularly indebted to Dr. C. H. Gadd of the Mycological division who has kindly undertaken the statistical interpretation of the results of the shot-hole borer experiments.

Tea tortrix (*Homona coffearia*) continues to be prevalent in some districts, and the systematic collection of egg-masses has been under serious consideration in the more seriously affected districts.

The tea pyralid (*Piesmopoda rufimarginella*) recorded in the report of the Entomologist for 1922 as a new pest of tea and mentioned last year as having appeared in the Kotmale and Badulla Districts has been reported only once during 1924 from another estate in the latter district. This caterpillar should be regarded as a potentially serious pest of tea, since it appears to be gradually becoming established in at least one district. The various stages of this insect were illustrated in the Yearbook for 1923 in an article entitled "The Tea Leaf-skeletonizer."

A serious outbreak of the Morawak korale nettle-grub (*Thosea recta*) was recorded from an estate in that district, and the fringed nettle-grub (*Natada nararia*) was reported from Maturata. An unusually widespread attack of the red borer (*Zeuzera coffea*) was reported from an estate in the Kalutara District. Small outbreaks of the red slug (*Heterusia cingala*) and the lobster caterpillar (*Stauropus alternus*) occurred.

The green bug (*Coccus viridis*) and the brown bug (*Saissetia hemispherica*) continue to be prevalent in the Haputale District, and were investigated by the Assistant Entomologist while Acting Entomologist.

Rubber.

A few reports of large grubs boring in the stems and tap roots of rubber trees have been received during the year. These were probably *Batocera rubus*. The brown bark borer (*Arbela quadrinotata*) was found boring in a living branch of a rubber tree in the Galle District. This insect is a common pest of cacao in the Kandy and Matale Districts.

Coconuts.

A widespread outbreak of the coconut caterpillar (*Nephantis serinopa*) occurred in the North-Western Province. Investigations made by this division showed that while *Nephantis* was seriously prevalent on a few estates, much of the damage attributed to it was the result of the fungus disease known as grey blight accompanied in some instances by the scavenging caterpillars (*Herculia nigrivitta* and *Erechthias pachygramma*). Reference may be made to an article on caterpillars attacking coconut leaves in the Yearbook for 1925. The campaign against *Nephantis* in the Batticaloa District has been systematically carried on throughout the year with good results. Among minor pests of coconut leaves may be mentioned the nettle-grub (*Thosea aperiens*), the larvæ of the large butterfly (*Elymnias fraterna*), and the spotted locust (*Aularches miliaris*).

Measures for the control of the black beetle (*Oryctes rhinoceros*) and the red weevil (*Rhynchophorus ferrugineus*) have been carried out under the Plant Protection Ordinance in the Matara and Batticaloa Districts.

Paddy.

Outbreaks of the swarming caterpillar (*Spodoptera mauritia*) occurred in the Batticaloa District during the first-half of the year, and were apparently a continuation of the attacks which began in the latter part of 1923.

The small leaf-hopper (*Niloparvata greeni*) did serious damage to young paddy plants in some localities in the Southern Province.

Cacao.

On an estate in the Kandy District a field of young cacao growing under dadap shade was attacked by the large hairy caterpillars of *Taragama dorsalis*, which descended on to the cacao after completely stripping the dadaps.

Helopeltis has been prevalent on some estates in the Kandy District towards the end of the year, and the bark and stem borer (*Arbela quadrinotata*) has been reported.

Cotton.

The pink boll worm (*Platyedra gossypiella*) is becoming prevalent in the Southern Province. Other caterpillar pests of cotton include *Cosmophila indica*, *Earias* spp., *Sylepta derogata*, *Eupterote geminata*, and *Stauropus alternus*. The last-named is better known as the lobster caterpillar of tea, and this appears to be the first record of this insect on cotton in Ceylon. The red bug (*Dysdercus cingulatus*) was also reported to be attacking cotton in the Southern Province.

Green Manure Trees.

A large area of dadap (*Erythrina* sp.) grown as shade for young cacao on an estate in the Kandy District was completely stripped by the large hairy caterpillars of *Taragama dorsalis*. The pest was eventually checked by the collection and destruction of the caterpillars and cocoons and by lopping and burning the dadap branches with cocoons attached to them. A wilt disease accounted for a large number of the caterpillars and cocoons, and crows were observed attacking and devouring the pupæ in their cocoons. The life-history of this pest has been worked out under laboratory conditions by the Laboratory Assistant, and an article will be published at an early date. The dadap shoot and stem borer (*Terastia meticolosalis*) has been prevalent on many estates at various elevations during the year. Dadaps were defoliated by the spotted locust (*Aularches miliaris*) on an estate in the Kurunegala District.

The pods of *Tephrosia candida* are frequently damaged by the grubs of the Tephrosia beetle (*Aræcerus fasciculatus*).

The leaves of *Indigofera* sp. have been attacked by the caterpillars of *Dichomeris ianthes* on two estates in the Galle District.

Albizzia has been attacked by the stem borer (*Arbela quadrinotata*) and by the leaf-eating caterpillars of *Terias silhetana*.

Vegetable Crops.

The investigations on the pests of vegetable crops begun last year by the Assistant in Entomology have been continued in 1924. The following pests have been the subject of special investigation :—On snake gourd (*Trichosanthes Anguina*), the chrysomelid beetle (*Aulacophora stevensi*), and the lady-bird beetle (*Epilachna dodeca-stigma*) ; on bitter gourd (*Momordica Charantia*), the lady-bird (*Epilachna 28-punctata*). Reference may be made to an article in the Yearbook for 1925 entitled "Some Beetle Pests of Cucurbits in Ceylon." Numerous other pests of vegetable crops have been under observation and investigation during the year.

Miscellaneous Plants.

Toona has been seriously damaged on some estates by the stem and shoot borer (*Hypsipyla robusta*) ; mahogany (*Swietenia* spp.) has been attacked by the borers *Hypsipyla robusta* and *Zeuzera coffeæ* and by the leaf-eating caterpillars (*Macalla* sp. near *moncusalis*) ; grevillea branches and stems have been riddled by *Calotermes militaris* and *C. greeni* ; the leaves of milla (*Vitex altissima*) have been eaten by the caterpillars (*Agrotera calatalis*) ; the young shoots and leaves of roses have been damaged by the beetles (*Apogonia rauca*, *Nodostoma bituberculata*, and *Mylocerus dorsatus*) ; plantains (*Musa* spp.) have been attacked by the root borer (*Cosmopolites sordidus*) and the stem borer (*Odoiporus longicollis*) ; the leaves of shoe flower (*Hibiscus rosa-sinensis*) and roselle (*H. sabdariffa*) have been damaged by the cotton leaf caterpillar (*Cosmophila indica*) ; and shoe flower and bandakkai (*H. esculentus*) have been attacked by the caterpillars of *Acontia transversa*. Pests of a number of ornamental plants have been observed or reported during the year.

Other Pests.

Tea mites appear to have been unusually prevalent during the year, especially the red spider-mite (*Tetranychus bioculatus*), the scarlet mite (*Brevipalpus oboratus*), and the yellow mite (*Tarsonemus translucens*).

Insectary.

The life-histories of some of the more important crop pests and of some of the pests of miscellaneous plants have been worked out during the year by the Assistant in Entomology and by the Laboratory Assistant.

Illustrations.

Black and white drawings and coloured plates illustrating the various stages of many of the insects mentioned in this report have been prepared during the year by the draughtsman attached to the Entomological Division.

Agricultural Shows, Lectures, &c.

Exhibition cases illustrating the more important insect pests of the principal crops of the Island were sent for exhibit at the agricultural shows held at Kurunegala and Kandy. Exhibits of crop pests have been lent to the Inspector of Plant Pests and Diseases, Central Division, for exhibit in connection with lectures on insect pests.

The Entomologist gave the following lectures during the year :—In June to the Galle District Planters' Association on Tea Termites and in November to the Kurunegala District Planters' Association on the Coconut Caterpillar.

Publications.

The following publications have been prepared by the staff of this division during the year :—

- "The Paddy Swarming Caterpillar," by J. C. Hutson. Leaflet No. 32.
- "The Tea Tortrix," by J. C. Hutson. Leaflet No. 33.
- "The Control of Shot-hole Borer of Tea," by F. P. Jepson. Bulletin No. 72.

III.—DIVISION OF PLANT PESTS AND DISEASES INSPECTION.

CENTRAL.

Office.—The number of permits issued for the sale of tea plants was 226, totalling 2,755,116 plants, an excess of 655,166 over the previous year. With the exception of January and February there has been a steady demand for plants throughout the year. September, June, and November, respectively, have been the months of greater demand for plants.

At the commencement of the year an investigation into the agricultural economy of rats was commenced. Live specimens of eight varieties of rodents were procured and kept under observation. During June plague broke out among the rats, necessitating the immediate destruction of all specimens. Considerable information of agricultural value, however, was collected. It is hoped the investigation may again be opened under conditions more unfavourable to the development of plague.

Investigations of the cigar beetle attacking tinned chocolate powder was also undertaken. Observations on the life-history of this insect continue.

Circuits.—Rather more attention has been paid to the small cultivator than estates during the year. As many gardens were calling for permits to sell their plants, it was necessary to inspect them. Also, by the series of lectures given by the Division during the year, the interest of cultivators of small areas has been roused to an appreciation of the value of agricultural methods of plant sanitation.

Circuit.	Estates.		Gardens.		Nurseries.		Acreage.	Days.	
N. K. Jardine	..	23	..	23	..	18	..	12,765	.. 44
J. J. Smale	..	37	..	5	..	9	..	14,067½	.. 54
R. A. Cameron	..	17	..	4	..	6	..	6,647	.. 31
L. J. P. Perera	..	—	..	428	..	1	..	904	.. 43
M. P. D. Pinto	..	—	..	364	..	2	..	936½	.. 42
T. J. Jayaratnam	..	1	..	327	..	3	..	924½	.. 41½
		78		1,151		39		36,244½	255½

Seventy-eight estates, 1,151 gardens, and 39 nurseries, totalling 36,244½ acres, have been inspected during the period under review. Only one inspection for water hyacinth was necessary.

Meetings.—The following District Agricultural Committee Meetings were attended by the Inspector :—

Kandy, September 24 ; Matale, June 10, October 6 ; Nuwara Eliya, July 12. Also the Estate Products Committee Meeting of July 10 for the discussion of the Tortrix question.

Lectures.—In co-operation with the Divisional Agricultural Officer (Central), a series of public lectures on pests and diseases has been given during the year, at which illustrated leaflets printed in the vernaculars have been distributed among those present, while the lectures were illustrated by specimens kindly supplied by the Entomological and Mycological Divisions. All day lectures were delivered at Kandy on April 30, Kegalla on June 26, and at Matale on July 17. Afternoon lectures were given at Wattagama on August 6, Wattapolla, Kadugannawa, on December 15, and again at Wattagama on December 20. It is considered that these lectures are popular and of material benefit in disseminating agricultural knowledge. Considerable success in interesting the small cultivator in plant sanitation and legislation and progressive agricultural methods has attended these endeavours of the Inspectorate.

Leaflets.—Illustrated leaflets on the major pest and diseases printed in the vernacular have been distributed in quantity during the year. It is considered they serve a very useful educational purpose. The leaflets which have been distributed are: Bunchy Top Disease ; Coconut Beetles ; Plantain Root Weevil ; Paddy Bug ; and How to Sow Seed and get Best Results.

General.—Shot-hole borer does not appear to have spread as seriously as in previous years. There have been but nine records of its appearance during the year on estates previously free.

A comparatively modest estimate of the number of gardens harbouring the pest is 90 per cent. This is chiefly due to lack of adequate cultivation and ignorance of plant sanitation on the part of the owner, and also to the very large illicit traffic of plants without permits which prevails among small owners in certain districts.

Tortrix has been prevalent to a considerable degree throughout the year. District Planters' Associations considered concerted action in collecting egg-masses necessary to ameliorate the attacks. Endeavours have again been made to introduce the adoption of flight breaks as a check to the general dissemination of the insect.

Termites : *Calotermes militaris* appears to be developing seriously. Numerous cases of grave damage to tea have been recorded during the year.

Dadaps : *Terestia meticulosalis* was again general throughout the Central Province.

Toonas : *Hypsipyla robusta* continues to be prevalent wherever the tree is grown.

Cacao : Bark borer (*Arabela quadrinotata*) also general in cacao, especially in areas where a miscellany of crops is grown.

Plantain Root Weevil (*Cosmopolites sordidus*) general throughout the plantain area.

Disphinctus numeralis taken on tea for the first time.

Botryodiplodia, *Fomes lamionsis*, and *Phytophthora faberi* have been general in rubber.

Cercospora, *Poria hypoleteritia*, and *Ustilina zonata* in tea.

Bunchy top has been very prevalent in plantains.

As the pests and diseases recorded during the year are enumerated in the monthly reports, it is considered unnecessary to further recapitulate in this report.

NIGEL K. JARDINE,

Inspector, Plant Pests and Diseases (Central).

SOUTHERN.

Circuits for the year were mainly confined to the Southern Province with occasional trips to Ratnapura and Kelani Valley, and total as follows:—A. T. Reeve 76 days, B. A. Pereira 160 days, and J. de Silva 58 days.

In all 118 estates were inspected. These consisted mainly of coconuts and rubber with a few tea areas. A few fresh cases of shot-hole borer infection were found.

WATER HYACINTH ERADICATION.

Several of the tanks in the Tangalla District were revisited, and although water hyacinth appears to be on the decrease there is still plenty present there, and this can only be kept under by systematic weeding. In most cases this is being carried out.

A further inspection was carried out on tanks in the East Giruwa and Magam pattus. Magam pattu tanks were found to be free from the pest, but a few places in East Giruwa pattu were heavily infested. Clearing work will be started there with the coming dry weather. Two small areas in the Bentota District were also cleared of this pest.

COCONUT BEETLE.

Estates and gardens in the Four Gravets, Matara, and Weligam korale were inspected *re* coconut beetle and red weevil infection. Circulars were issued to all proprietors, and both districts were cleared up as far as possible. It was noted, however, that in Wellaboda pattu, cleared last year, a good number of fresh cases are appearing, showing that very little interest was taken last year. Most of the larger proprietors keep their estates reasonably free from coconut beetle breeding grounds, but it is in the smaller gardens that trees killed by red weevil are usually found.

BROWN BAST CENSUS.

Of the area of rubber in the Kelani Valley examined in 1923 for Brown bast, two-third was re-examined during 1924, that is, 2,000 trees. The results have been written up as a short report for the Yearbook.

BUNCHY TOP.

An experiment was started *re* bunchy top of bananas near Ahangama, and as the plants mature it is hoped to test various remedial methods and also varietal resistance. The suckers planted were all obtained from gardens free from bunchy top.

EXPORT PERMITS.

Under the new Plant Protection Ordinance two permits were applied for, in order that living plants might be exported from the Island. These were granted.

SPECIMENS.

Specimens received from estates amounted to 36, and consisted mainly of the common rubber and tea pests, and diseases such as *Brevipalpus obovatus*, *Septobasidium* sp., *Diplodia*, and *Irpex subvinosus* on tea; and *Fomes lignosus* and *Kretzschmaria micropus* on rubber; and bud rot on coconuts.

The following more uncommon pests and diseases were noted during the year:—

Banana.—(1) *Marasmius* spp.; (2) *Prodenia litura*.

Rubber.—(1) *Arbela* sp.; (2) white stem blight on small branch.

Cotton.—*Colletotrichum gossypii*.

GENERAL.

Rubber has again suffered from a heavy attack of secondary leaf fall in both Kalutara and Kelani Valley Districts, but the attack in Ratnapura and Galle Districts was not so heavy as in 1923.

Most of the common root and stem diseases of rubber were noted during the year. No serious outbreaks occurred.

TEA.

Calotermes sp. especially *Calotermes dilatatus* continues to be the major pest of tea in the Low-country. Shot-hole borer is common, but nowhere severe, and other pests are occasional except for occasional outbreaks of nettle-grub.

Diplodia is the most troublesome root disease followed by *Ustilina zonata* and *Poria hypolateritia*. Other root diseases are uncommon. Black rot (*Corticium Theæ*) again appeared, and also *Cephaleuros parasiticus* and *Macrophoma Theicola*. Other tea diseases are negligible.

COCONUTS.

A few cases of bud rot were recorded, but most damage is done by black beetle (*Oryctes rhinoceros*) and red weevil (*Rhynchophorus ferrugineus*). Two attacks of *Nephantis serinopa* and one of *Elymnias* were recorded.

PADDY.

A severe outbreak of *Nilaparvata greeni* occurred in the Elpitiya District. Other pests recorded were *Schaenobius bifunctifer*, *Nymphula depunctalis*, *Parnara mathias*, and *Spodoptera mauritia*.

BANANAS.

Bunchy top appears to be if anything on the decrease. *Cosmopolites sordidus* was found to be common.

COTTON.

The following pests were found to be common on cotton plants:—*Anomis indica*, *Gelechia gossypiella*, *Earias* sp., *Dysdercus* sp., and *Oxycaenus* sp.

GARDEN CROPS.

Epilachna 28-punctata was found on brinjals and bitter gourds.

A. T. REEVE.

Inspector, Plant Pests and Diseases (Southern).

BATTICALOA.

I WAS seconded for service from the Department of Agriculture for duty under the Government Agent, Eastern Province, from January 1, 1924.

LECTURES AND DEMONSTRATIONS.

The main work during the period under review was to educate the coconut planters and cultivators of paddy re the principles of estate sanitation and the preventive and remedial measures to be adopted against various pests and diseases. Demonstrations were given in coconut estates and paddy fields of the different methods to control the pests. A demonstration lecture on the army worm of paddy and its control methods was given during the agricultural show held on March 14. Eleven lectures to cultivators were given at various centres of the district on the swarming caterpillar pest of paddy.

COCONUT CATERPILLAR (*Nephantis serinopa*).

The pest received the closest attention during the period under review. Cutting and burning the infested leaves have been carried out to eradicate the pest. It is gratifying to note that the pest has greatly subsided. Shortage of labour has been a great handicap to effective work.

Parasites.—A few parasites from the Western Province have been liberated in a few estates in this district with a certain degree of success. It is found that large numbers of parasites have to be introduced to control the caterpillar pest in this district.

PADDY.

Swarming Caterpillar of Paddy (*Spodoptera mauritia*).—Out of the many pests that were recorded the swarming caterpillar did the largest damage to the “Yala” (S.) crop or “Kalapoka Vellamai” (T.), and “Idapoka Vellamai” (T.) or intermediate crop. The former crop suffered more from the attack than the latter, which benefited by the fields being flooded in time to destroy the young caterpillars.

Bag Net.—During the first outbreak of the caterpillar the bag net was improved with a set of teeth and a roller to collect the caterpillars from the seedlings. The cost of making such a machine was, however, too expensive for small landowners. Such a machine could, however, be advantageously used when no water is available to control the pest.

Paddy Bug (*Leptocoris varicornis*).—This was doing considerable damage to paddy during the year. The “Kalapoka Vellamai” suffered more from the attack than “Idapokka Vellamai.”

Stem Borer of Paddy (*Schenobius bibunctifer*).—This is another pest that has done some damage to the crops.

Minor Pests.—The following insect pests were also recorded during the course of inspection:—*Nymphula depunctalis*, *Parnara Mathias*, *Cnaphalocrocis Medinalis*.

COTTON.

Crickets.—An inspection of cotton experiment opened up by Mr. S. Kumarasamy was made. The seedlings of one to two weeks were attacked by crickets. Heaping up of earth around the stems of young plants till they are about a month old kept off crickets.

M. R. M. JEBARATNAM,
Sub-Inspector, Plant Pests, Batticaloa.

IV.—REPORT OF THE GOVERNMENT AGRICULTURAL CHEMIST.

THE year 1924 was clouded by the tragic and lamented death of Mr. M. Kelway Bamber, Chemist to the Department since 1900. The late Mr. M. Kelway Bamber left Ceylon on six months' leave in April, 1924, and was expected to return in October; his death by motor accident took place on September 21 at Gravesend. The late Mr. M. Kelway Bamber when on leave had interviews with the Government Chemist, London, on the subject of rubbishy teas, citronella oils, &c. He also investigated the possibility of manufacture of aluminium and alumina from laterite (cabook), based on work carried out here on a variety of samples collected by the Government Mineralogist. The question of road dressing with a rubber preparation had his attention, the process having been worked out here on a semi-commercial scale. It was hoped that the raw rubber industry would be relieved of inferior grades by interesting road authorities in the United Kingdom in this preparation on a large scale. No reports were received on the above investigations from the late Mr. Kelway Bamber, so that temporarily at least the detailed information collected is not available.

The citronella oil industry is on a much sounder basis than in the years 1922–23. Spirit adulteration has stopped. Kerosine adulteration skilfully carried out continues to some extent. “Pure” or “estate” oils can only claim to be commercial oils; when a fall on the market occurs invoices can apparently be turned down on small evidence that they are not absolutely pure; a commercial article can never hope to be 100 per cent. pure.

Spirit used for carrying out Schimmel's test must be rectified, 80 per cent. by volume, not denatured spirit, in which petroleum fractions are added to make the spirit unpotable. The test must be carried at 20°C. Due to neglecting these points consignments of citronella oil have been brought from Matara to Colombo only to be condemned there and returned, causing a good deal of inconvenience to the shipper and also much unnecessary expense.

The raised Schimmel's test carried out by adding 5 per cent. of kerosine to a test sample of the oil should be allowed to stand a few hours before carrying out the ordinary Schimmel's test on the mixture; if this is not carried out the purest oils will throw out oily drops on standing.

The method of testing of citronella oil is not considered satisfactory by the Essential Oil Sub-Committee of the Society of Public Analysts. Correspondence is passing on the subject.

The Fertilizers' Ordinance (1901) has been revised and presented to responsible bodies interested. The revision has their support. The particular points requiring revision are: (1) Guarantees for the different forms of nitrogen, ammoniacal, nitric, cyanamide, organic—at present only the total nitrogen is guaranteed; (2) misnomers and descriptions; (3) sampling.

A statistical report of the manures imported has been prepared and graphed (1914–1924).

A report showing the composition of the different layers of the coconut meat has been published. Deductions have been made from these as to germination of the nut and also commercial conclusions about coconut oil.

A sample of rum prepared by Mr. Winter of Baddegama was sent here for examination, and proved to be good potable rum, but lacking in body. A good sample of sugar was examined from the same source.

Leucana glauca was examined as a source for fodder. The leaves and green stalks form better feeding than the young pods which have a higher content of woody fibre.

A new manure "Ammo Phos." has been put on the market by the American Cyanamid Company. The manure is prepared by obtaining ammonia from cyanamide (originally) from the air, and absorbing it in phosphoric acid made from superphosphate. Consignments have been sent here for manurial trial. There are several grades: (1) 12 per cent. (NH₃) ammonia, 40–48 per cent. phosphoric acid; (2) 20 per cent. (NH₃) ammonia, 16–18 per cent. phosphoric acid. The latter are inclined to be hygroscopic which may be a deterrent against its use here.

A new departure was started by the Divisional Agricultural Officer, Northern Division (Mr. Harbord) in making ensilage from cholam. On comparing the analyses it is found inferior to ensilage from green oats and tares, but it will be a useful additional cattle food for Ceylon.

A paddy soil was sent from the Divisional Agricultural Officer, Southern Division. It was found to be half organic matter with a 1.5 per cent. nitrogen; the mineral matter is rich in soda and sulphates, sulphuretted hydrogen was also given off. It was suggested to keep the area unflooded, lime heavily, plough, broadcast flour phosphates. This was a special case of paddy soil.

The soils from the cacao experimental plots were examined. It was found that the continued application of lime had made some of them more alkaline than the usual run of Ceylon cacao soils. It was suggested to discontinue the plots as experiments for some time until the liming effect had worn off.

The question as to superiority of dark-skinned copra over light-skinned copra arose. Analyses did not indicate a higher oil content in the dark-skinned copra.

Indigofera endecaphylla indicates a useful green manure on analyses. The sun-dried plant gave 2.5 per cent. nitrogen, and the ash showed lime 33 per cent., magnesia 12 per cent., potash 22 per cent., which will be in an available condition when the plant is incorporated with the soil and humified.

The new Chemical Laboratory at Peradeniya is nearing completion. Apparatus and chemicals have been ordered and will be delivered shortly.

Work has been greatly hampered by sickness of the staff during the latter part of the year.

February 3, 1925.

ALEXANDER BRUCE,
Acting Government Agricultural Chemist.

V.—REPORT OF THE DIVISION OF ECONOMIC BOTANY.

PADDY SECTION.

THE main series of 5½ to 6½ months' pure-line strains, developed at Anuradhapura, has reached the stage of field trial, and seed of 43 of these will be available for distribution when the present crop is harvested in March, 1925. Quantities ranging from 4 to 20 bushels, according to the area sown, may then be in stock. For the last three seasons the area under each has been sufficiently large for close comparison, and the highest yield obtained was that of strain B 27 (selected from a Central Province *kohumawi* of 6 months' duration) which, in the maha season of 1922–23, gave 4,917 lb. of cleaned paddy per acre, as the average of 8 plots. The weight of 1 bushel was 43 lb., and the yield was thus equivalent to 114 bushels per acre transplanted under experiment station conditions. This strain has given the best continued yield over the test period of 3 years, with an average of 4,021 lb. of cleaned paddy per acre. Strain W 15 (selected from a North-Western Province *mawi* of 5½ months' duration) had a 3-yearly average of 4,015 lb. cleaned paddy. Taking the average bushel weight of paddy as 45 lb., 37 of the above strains show an average of over 60 bushels per acre for 3 years, including 10 with an average of over 80 bushels per acre.

The mid-age and short-age types require further treatment before any general statement can be made. Many of the types originally selected have been discarded in favour of more promising ones, and another year must elapse before they can be tried on a field scale.

The scheme outlined previously for collecting types from various centres for extraction of pure-line strains to be tested under local conditions has made a successful start. The Peradeniya Experiment Station is being used for the initial work, and seed from single selected ears was sown in the yala and maha seasons.

Work of the Year: Maha Season, 1923–24.

(a) *Anuradhapura*.—The 17 line strains transferred from the Experiment Station, Peradeniya, gave yields varying between 1,866 and 3,821 lb. cleaned paddy per acre (average of 4 or 5 plots). In most cases the effect of the change was marked when compared with the previous year; but the yields at Peradeniya for the same season were also low, and the strains at Anuradhapura, although chosen from the poorest yielders, gave a higher return in general than those remaining at Peradeniya. The period of growth was shortened in some cases by 30 days, a difference of 3 weeks being common.

The 48 line strains comprising the main Anuradhapura series showed a falling off. The season was bad in the neighbourhood, and rain interfered considerably with the ripening. The straw weights were reduced, and the paddy generally took an extra 10 to 15 days to ripen off. The extremes of yield of cleaned paddy per acre were 1,156 lbs. and 3,674 lb. excluding one failure of only 765 lb.

Fourteen pure-line test blocks of *anaikodan* and *illankalayan* of local origin were sown through a sowing board, allowing 100 plants per plot. Comparative trial plots of the 14 *tillanayagam* strains selected last season were sown, and 10 specially selected strains were also included. Six pure lines established by the Economic Botanist, Coimbatore, from samples of paddy growing at Poonaryn, were transplanted into small plots. Much damage was occasioned to these by stray buffalo. The yields did not compare very well with local types, but the strains are being tried again to see how far this may have been due to a change of climate. They matured almost together in 112 days, and the maximum yield for a plot of 175 square feet was observed in strain E. B. 345 b (from *mottai karuppan*) to be 11 lb. of cleaned paddy and 15 lb. of straw.

Five types, collected locally, were sown to observe their performance under experiment station conditions. No selection work was done on them this season.

Field trials, for a basis of comparison, were made on two local paddies, *illankalayan* and *tillanayagam*. The former matured in 145 days, and gave 49 bushels per acre. The latter also matured in 145 days, but was badly diseased in the early stages, and yielded only 25½ bushels per acre. This is far below the district average.

The cultivation experiment was repeated exactly as in the previous year.

(b) *Peradeniya*.—As the number of strains under trial had been reduced from 32 to 15 by transferring the 17 poorest to Anuradhapura, the remaining strains were transplanted in plots 4 feet by 20 feet, with 13 repetitions of each. Rainfall was heavy throughout the season, 10·03 inches, 16·75 inches, and 14·68 inches being registered respectively in September, October, and December, 1923. Much damage was occasioned by rodents in the later stages. This was investigated by the Plant Pests Inspector (Central), and several rats and bandicoots were caught. The figures for cleaned paddy per acre varied between 1,681 lb. and 2,895 lb. with one outstanding failure of 958 lb.

The six *hatial* strains, of one year's standing, were broadcasted for further comparison and to allow of sufficient seed for a trial in standard plots next season.

Of the paddies suitable for brackish water conditions, 109 line strains were sown. One type, *karuthavanan*, produced no seed in the previous season. Birds, paddy fly, and rain ruined the crop, which was a complete failure.

Yala Season, 1924.

Strains whose yields for the previous season were above the average of the whole were selected for retrial in each series.

(a) *Anuradhapura*: Series 1.—Ten strains of 4½ to 5 months' duration were transplanted in plots of 4 feet by 40 feet with five repetitions. The same strains were also transplanted on a field scale, each occurring in 2 plots of 517 square feet. The yields varied between 1,865 lb. and 3,594 lb. cleaned paddy per acre.

Series 2.—The types were again subdivided into groups according to age, viz., Lot A of 3½–4 months and lot B of 4–4½ months.

Lot A.—Seventeen strains were sown a month later than Series 1, and transplanted in plots of 4 feet by 40 feet with five repetitions. Field trials were also made in plots of 564 square feet. Yields between 2,319 lb. and 4,041 lb. were obtained, with a flat age of 118 days.

Lot B.—Fifteen strains were transplanted with five repetitions, and field trials were made as above. Yields between 1,821 lb. and 3,281 lb. were taken, and all ripened after about 130 days.

Four early maturing types, supplied through the kindness of Dr. C. A. Hewavitarne, from his farm under Kirindi-oya, were tried, and gave good yields. They will be used for extraction of line strains.

A field of Florida paddy (*bintara bata*), kindly supplied by Mr. A. W. Winter of Galle, was broadcasted in June. The growth was uniform, and two distinct types bearing red and white rices were observed, flowering at different dates. A yield of 34½ bushels of cleaned paddy per acre was taken, calculated from a plot of 6,952 square feet.

(b) *Peradeniya*: Series 1.—Over 4½ months. Eight strains were transplanted, with seven repetitions, in plots of 4 feet by 20 feet. All were harvested between 175 and 179 days after sowing. The yields varied between 2,022 lb. and 3,087 lb. cleaned paddy per acre.

Series 2, Lot A.—3½ to 4 months. Ten strains were transplanted with seven repetitions of each. The fields were twice completely flooded, and rain fell constantly during the flowering period. The result was a considerable lengthening of maturing period to 198 days. The yields varied between 1,099 lb. and 2,042 lb. cleaned paddy per acre with one very poor type at 637 lb. The season proved bad elsewhere.

Series 2, Lot B.—4 to 4½ months. Eight strains were transplanted, with seven repetitions. The fields received the same floods as those of Lot A, and ripening was similarly delayed. The yields varied between 1,026 lb. and 2,727 lb. cleaned paddy per acre.

Two samples of hill paddy failed to set grain. Three small fields of Florida paddy were broadcasted, and made excellent growth. Heavy rain when the plants were flowering prevented the setting of a single grain.

From the 21 samples collected by Agricultural Instructors, 407 pure-line blocks were laid down. These will form the basis of the new scheme, and selection of desirable strains will be carried out under local conditions.

Maha Season, 1924–25.

(a) *Anuradhapura*.—The main series has been put down on a field scale, each of the 43 strains covering ½ acre on the Economic Botanist's fields, and areas up to ½ or ¾ acre on the chena clearing. No small plots of these strains have been sown. The *Peradeniya* series has been transplanted in plots 4 feet by 40 feet with four repetitions. The cultivation experiment is again repeated. Selected strains of *anaikodan* and *illankalayan* are broadcasted in small plots for comparison, and the *tillanayagam* selections, and the 6 strains from Coimbatore are to be transplanted later.

A hedge of Madras thorn has been established round the compound of the new store. The old hut has been pulled down, and six new paddy fields opened round it. These are to be sown with *kandi murungan*.

(b) *Peradeniya*.—The main series has been put down on a field scale, with each strain occupying half a field. The *hatial* selections are repeated 10 times in plots of 4 feet by 20 feet. From the samples sent in by Agricultural Instructors, 365 ear-to-row plots are established. In addition, a series of 62 differently named varieties has been sown, and pure-line cultures of these will be established.

The Totadeniya fields have been sown with green manure, and the Panchikawatta fields have green manure sown on the bunds.

Collections of paddy varieties have been made for dispatch to Rhodesia, Siam, Cochin-China, and the Deccan Canals, India.

Trials with selected strains have been made in various centres. Some have proved very successful, but in other cases the age has been so far altered by change of position and climate, that little or no grain set. In these cases, almost without exception, the growth has been reported excellent up to the flowering stage, after which the paddy fly has taken the crop.

VEGETABLE SECTION.

During the north-east planting season of 1923, the following strains were sown :—

Brinjals.—Forty-eight strains in 4 series.

Chillies.—Thirty-nine strains in 4 series.

Snake Gourds were sown in 5 groups, attention being chiefly directed to selection for disease resistance and heavy yield.

For the south-west planting season of 1924, there were sown :—

Brinjals.—Twenty-nine strains in 3 series. Bacterial wilt did much damage, but 4 strains appear to have developed a certain immunity therefrom.

Chillies.—Forty-five strains in 3 series.

Snake Gourds.—Thirty-one strains in 6 series. The arbitrary grouping based on external features has been shown to be faulty, and must be worked out again.

Cow Peas.—Thirty-one strains in 2 series.

Bandakka.—Forty-eight strains in 2 series.

For the north-east planting season of 1924, the following are sown :—

Brinjals.—Twenty-eight strains in 2 series.

Chillies.—Thirty-one strains in 2 series.

Snake Gourds.—Permanently in plots, 72 vines in all.

Cow Peas.—Twenty-nine strains in 2 series.

Bandakka.—Forty-three strains in 2 series.

Preliminary observation on the morphological structure of the flowers of the above crops were made.

A temporary field laboratory with a room for storage of seed was constructed. The well was deepened and faced with brick and concrete. A further block of $\frac{1}{4}$ acre has been opened across the road.

January 26, 1925.

R. O. ILIFFE,
Economist Botanist.

I.—REPORT OF THE CENTRAL EXPERIMENT STATION, PERADENIYA.

TEA.

TIPPING was completed, and all tea was in bearing at the end of February. The total output of green leaf for 1924 was 37,593½ lb. from 11 acres; an average of 3,417·6 lb. green leaf equal to 825 lb. of made tea per acre. This has been the highest yield obtained since 1920.

In the old tea under manurial experiments which was pruned in October and November, 1923, 109 bushes have been lost since pruning, compared with 500 after the severe pruning in 1921. During the year *Oxalis corniculata*, which is fairly prevalent throughout the tea areas, has been left unweeded; the plant now forms a very fair ground cover.

The manures were applied to the plots under manurial experiment in March.

In plots 144 and 149 the dadaps have been cut, yielding 27,710 lb. and 12,240 lb. green material per acre, respectively.

The *Gliricidia maculata* in the $\frac{1}{2}$ acre plot was lopped, yielding 20,400 lb. of green mulch per acre.

The dadaps in the $\frac{1}{2}$ acre plot were lopped, yielding 14,620 lb. of green mulch per acre.

33,150 *Gliricidia* cuttings were supplied during the year to estates in the following districts :—Batticaloa, Kotmale, Kegalla, Colombo, Elkaduwa, Ulapane, Bandarawela, Badulla, Demodara, Halgranooya, Alawatugoda, and Madulkele.

RUBBER.

A new experiment was started on April 1 on 9-year old trees grown from seed of No. 2 tree, Henaratgoda, in plots 11, 12, and 13. The yield of dry rubber from each tree is being separately recorded.

The following experiments already in progress have been continued during the year, and the yields obtained are being carefully recorded :—

- (1) Old manurial experiment—Alternate day tapping.
- (2) Old two- *versus* three-day tapping trials.
- (3) Individual tree yield—Alternate day tapping.
- (4) Tapping of avenue rubber under manurial mixture with and without lime—Alternate day tapping.
- (5) Hill side rubber—Tapping alternate days throughout the year *versus* tapping daily in alternate months.
- (6) Tapping of the hill top rubber planted in three methods :—
 - (a) 20 feet by 20 feet. The object of this experiment is to test results of two- *versus* three-day tapping.
 - (b) In avenues 15 feet by 15 feet, 40 feet between avenues.
 - (c) In clumps of 4 trees, 15 feet by 15 feet, 40 feet between clumps. The object of these two experiments is to test the relative values of planting in clumps and avenues and also to determine the results from V cut *versus* single half-spiral cut.

The manures were applied this year in trenches dug in the interval between the trees which did not receive manure last year.

Fifty plants of a large seeded variety of rubber were received from Henaratgoda Gardens and planted along the side of the road bounding the economic collection on the south-east side.

The smoke-house has been improved ; a controlled opening has been made for ventilation on the ridge of the roof, and the rest of the building made smoke-tight.

Several orders for seed from the offspring of the Henaratgoda No. 2 tree have been supplied.

The rubber trees in plots 63-67 above the young cacao planted in 1914 and the trees in plot 140 D behind the store lines planted in 1914 have been marked with a single cut of 20° on the half circumference at 24 inches from the ground, preparatory to bringing them into tapping for the first time from January, 1925.

CACAO.

The crop for the year ending March 31, 1924, was a poor one, 2·24 cwt. of good and black cacao per acre against 3·6 cwt. the previous year.

The incidence of canker was also very heavy ; black cacao constituting 29 per cent. of the total crop. The percentage of black for 1922-23 was 26 per cent.

The highest price obtained was Rs. 56 per cwt. for unselected cacao. An examination has been made of the methods employed in the past to calculate the crop of dry cacao yielded by individual plots from the number of good pods gathered or from the weight of wet cacao. The percentage of good dry to good wet cacao appears tolerably constant, but the number of good pods required to make 1 cwt. of cacao is not so constant, and the number hitherto adopted appears small.

Thirty branches of each of the different types of cacao existing on the station were layered by the gootee method for planting out in the economic area.

Lopping of dadap shade and pruning was carried out during the early part of the year.

The manures were applied to " B " cacao according to the scheme.

A scheme of cacao fermenting experiments was planned, and samples of cacao prepared in six different ways were submitted to Messrs. Cadbury Brothers, Ltd., and a report received.

COFFEE.

The interest in the cultivation of coffee is still maintained. Yields ranging from 2·37 to 8·38 lb. of berries per tree were obtained from the Robusta types and 5·65 to 9·16 from the Liberian types for the season 1923-24.

The old Robusta coffee in plot 140 G, less two rows, has been pruned down to 6 inches from the ground, and two suckers allowed to grow up.

The reorganization of the planting of the 6-acre coffee field, consequent on the partial failure of Jackson's Hybrid and Kent's Arabica coffees in the upper and more exposed part of this field, has been carried out. Quillon, Uganda, and Hybrid coffee plants from the experiment station nurseries were planted, the plants being removed with the aid of the transplanting tool. All the coffee trees including those in the economic area and under rubber have been systematically pruned. The *Leucæna*, dadap, and *Gliricidia* shade have been regularly lopped and mulched round the coffee trees. Every alternate shade tree has been uprooted as they were found to be too close. In September all the plots were given a surface dressing of one basket of cattle manure per tree.

COCONUTS.

A census of coconut trees was taken in December. There are in all 1,800 trees in bearing and 614 young trees not in bearing.

The crop for 1924 is 48,497, being an average of 26·9 nuts per tree in bearing, compared with 25·2 nuts the previous year. The greater part of this crop was harvested from old palms scattered throughout the cacao and the old grass fields of the station.

Of the nuts planted in different positions, twelve in each position, the following germinated :—Horizontal 6, vertical 10, slanting at about 45° 11. The plants have been planted out in plot 161 B with a view to comparing the subsequent growth and form of the trees.

The nuts from specially selected trees received from Jugra Land and Carey, Ltd., Federated Malay States, germinated well, only 3 out of 29 nuts having failed to germinate. These have been planted out in plot 161 at Bandarattenna along the river side. Two San Remo plants were planted out in a portion of plot 161. These nuts are said to be of excellent quality.

An application of $\frac{1}{2}$ lb. Ammo-phosphate (20/20 grade) was made to every alternate tree of the dwarf coconuts planted between the river and the main entrance road. These plants which made very poor growth for the first two years are now making progress.

All couch and illuk have been eradicated from this area.

FIBRES.

Samples of roselle fibre (*Hibiscus sabdariffa* var. *Alissima*) grown on the Experiment Station, Peradeniya, were submitted to Messrs. J. Thomas & Co., Calcutta, and to the Imperial Institute, London, for report and valuation. Very favourable reports were received. The fibre was valued by the Calcutta firm at Rs. 285·80 per ton, and represents according to yields obtained on the experiment station, a gross return of between Rs. 206·30 and Rs. 251·30 per acre. The fibre sent to the Imperial Institute was valued by merchants in London at £27 per ton with " first marks," Calcutta jute at £26 per ton. Various methods of extracting the fibre were tried.

Sisal bulbils are being planted out in nurseries for supplying orders.

FODDER GRASSES.

A separate report was published in August on the results of the third year's trials of fodder grasses. There was a decrease in yield from the first to the third year. Guinea grass again proved the best fodder grass for this locality.

An examination of the figures of the fodder consumed by the imported Scinde cows reveals that if the maximum yield of Guinea grass of nearly 40 tons per acre per annum could be maintained, an acre of this grass would be sufficient to maintain three large cows, though there might probably be some difficulty during the dry months.

Seed of the following new fodder grasses was received during the year :—

Buffel grass (purple top).	Buffalo grass.
Rhodesian Tussock.	Coarse Guinea grass.
Native <i>Paspalum</i> .	

Rhodes grass (*Chloris gayana*) promised no utility and has been abandoned.

Napier's grass (*Pennisetum typhoideum*) is doing very well and giving heavy yields of fodder. Cuttings of this grass have been supplied to several planters and agriculturists in different parts of the Island. A planter from Batticaloa writes that the grass is now thoroughly established on the edges of swamps on his estate, and appears quite a suitable fodder for low-lying land.

The Efwatakala grass (*Melinis minutiflora*) which was planted out near the Getambe culvert has made excellent growth and has withstood the drought admirably. This grass is very similar in appearance and habit to water grass, but appears to require drier conditions.

Elephant grass (*Pennisetum purpurascens*) which was divided out in the fruit plots has also made excellent growth.

CEREALS.

Adlay (*Coix lachryma Jobi*).—A crop of this food grain sown in June and harvested in December yielded well, 82 bushels or 2,736 lb. of grain per acre. Adlay may prove a valuable food asset, as not only can it be eaten boiled, but it makes a most excellent flour of first class strength.

Maize and other crops planted in December, 1923, proved almost a complete failure owing to the early cessation of rain and the dry winds experienced in January.

TUBERS.

Yield trials of sweet potatoes and *Dioscorea* yams were continued with satisfactory results. Joes' sweet potato appears to be the heaviest yielder this year with an acre yield of 17,944 lb. of tubers.

Dioscorea Yams.—Klapa gave an acre yield of 20,405 lb. and angili-ala 19,598·4 lb.

GREEN MANURES AND COVER PLANTS.

The interest aroused in the cultivation of these plants continues. The station has been endeavouring to maintain a sufficient stock of green manure seed and cuttings, although the demand far exceeds the present supply. The following plants have been tried on the Experiment Station during the year with varying success :—

Group 1.—Leguminous Creepers and Trailing Plants.

<i>Centrosema plumieri</i>	<i>Pueraria javanica</i>	<i>Desmodium Heterophyllum</i>
<i>Centrosema pubescens</i>	<i>Vigna oligosperma</i>	<i>Desmodium gyroides</i>
<i>Indigofera endecaphylla</i>	<i>Desmodium triflorum</i>	

Group 2.—Leguminous Shrubs, which all require Periodical Loppings.

<i>Crotalaria striata</i>	<i>Tephrosia candida</i>	<i>Indigofera sumatrana</i>
<i>Crotalaria incana</i>	<i>Tephrosia Hookeriana</i>	<i>Indigofera Hirsuta</i>
<i>Crotalaria laburnifolia</i>	<i>Tephrosia purpurea</i>	<i>Cajanus indicus</i>
<i>Crotalaria anagyroides</i>	<i>Tephrosia vogelii</i>	<i>Clitoria cajanifolia</i>
<i>Crotalaria usaramensis</i> (<i>Crotalaria muijussi</i>)	<i>Indigofera arrecta</i>	

Group 3.—*Centrosema pubescens*, *Indigofera endecaphylla*, *Vigna oligosperma*, *Crotalaria usaramensis*, *Crotalaria anagyroides*, *Clitoria cajanifolia*, and *Tephrosia vogelii* have given very good results in Peradeniya. They are, therefore, well indicated for immediate results, but it would be well worth experimenting with the others, among which some might be found to suit almost any locality and conditions.

PESTS AND DISEASES.

Kalutara snails have been very much in evidence. They have been observed eating coffee blossoms and berries. A reward of Re. 1 per sack resulted in the collection of over two tons of snails from the cacao and coffee plots.

Two more rubber trees which showed signs of root disease (*Fomes lignosus*) were uprooted and burnt, and the affected area trenched. Forty-seven rubber trees were affected with abnormal leaf fall after the heavy rains.

One hundred and nine diseased tea bushes from 11 acres were uprooted and burnt. Cases of Diplodia, Sphærostilbe, and Brown root disease were identified among the specimens sent for examination.

The experiment inaugurated in November last to test the treatment proposed by a plantain grower in Queensland who claimed success in the prevention of this disease showed 24 per cent. of plants affected with bunchy top during the year. An examination was made in June of a number of cacao trees, which in February and March had been treated for stem canker by light scraping of the cankered bark and rubbing on crystals of copper sulphate. In one single case had the disease spread from a patch thus treated. These observations confirm a similar examination made last January. A large percentage of diseased pods were collected this year due to continuous rain during August and into September.

Phytophthora was found at Peradeniya on rubber pods this year for the first time.

Shot-hole borer is very much on the decrease.

There has been very little disease of any other kind recorded.

GENERAL.

Roads.—Four further lengths of roads have been metalled and completed. Narrow culverts have been widened and existing roads repaired as far as funds allowed.

A new set of cooly lines (ten rooms) has been built by the Public Works Department.

The system of labelling has been overhauled, and standard labels of different types adopted.

A plot of land of a definite size has been allotted to each cooly desirous of cultivating a garden, and these gardens have been registered.

The manure pit has been improved. The pit has been divided into two, and a separate tank built for liquid manure.

Two new pairs of estate bulls have been purchased for work on the station.

Leucaena glauca seed has proved a great success as a food for working cattle.

The low jungle along the river bank at the Getambe area has been cleared and burnt.

Extra funds were provided during the year for the eradication of couch grass and illuk. Many tons of these grasses have already been burnt or carted away.

The general health of the coolies has been satisfactory. A few cases of chickenpox, measles, and mumps occurred. Every precaution was taken against the spread of the disease.

The labour outturn, on the whole, has been satisfactory.

The Manager continued to give practical demonstration in planting to the students of the School of Tropical Agriculture.

METEOROLOGICAL.

The total rainfall on the experiment station was 90·90 inches. January was the driest month with 1·50 inches and September the wettest with 16·71 inches. The heaviest rainfall in any 24 hours was 4·55 inches on September 29–30. The following is the rainfall for the year showing the number of wet days :—

	Inches.	Wet Days.		Inches.	Wet Days.
January ..	1·50	.. 6	September ..	16·71	.. 21
February ..	2·50	.. 4	October ..	10·39	.. 12
March ..	7·14	.. 13	November ..	6·48	.. 17
April ..	5·01	.. 10	December ..	5·24	.. 11
May ..	5·29	.. 12			
June ..	7·98	.. 17	Total ..	90·90	164
July ..	11·79	.. 23			
August ..	10·87	.. 18			

H. A. DEUTROM,

Acting Manager, Experiment Station, Peradeniya.

VII.—REPORTS OF DIVISIONAL AGRICULTURAL OFFICERS AND OF AGRICULTURAL INSTRUCTORS.

CENTRAL.

STAFF.

Mr. M. B. W. Palipane, Head Clerk of the Central Divisional Office, was transferred in May to the Badulla Kacheheri, and was succeeded by Mr. K. Ponnaiyah of the Provincial Engineer's Office, Badulla. The following officers passed the Departmental Probationers' Examination :—Messrs. P. B. Kapuwatte, A. Abeysinghe, and M. B. Boange. In the Vernacular Examinations Messrs. P. B. Kapuwatte and M. B. Boange passed in Sinhalese, while Mr. A. Abeysinghe was successful in Sinhalese and Tamil. Mr. N. Thambiah, Agricultural Instructor, Batticaloa, was stationed at Wattagama on temporary transfer during July and August, 1924. Mr. H. S. Perera, Vernacular Agricultural Instructor of Beligal Korale, was transferred to Kegalla in August, his place being taken by Mr. P. C. Rodrigo, Vernacular Agricultural Instructor, Kegalla. Mr. T. K. D. Samarasinghe, Bee-keeping Instructor, worked in Kegalla District for five months from June.

DISTRICT AGRICULTURAL COMMITTEES.

The Matale Committee met regularly every two months, and is active. The Nuwara Eliya Committee has met fairly frequently, but is not regular. Meetings of the Kegalla and Kandy Committees depend entirely on the initiative of the Divisional Agricultural Officer and are irregular and unsatisfactory.

It is not easy to get these Committees on sound regular lines. Under the present arrangements, the whole success of the Committees' work depends entirely on the cordiality of the relations between the Assistant Government Agent and the Divisional Agricultural Officer. The Committees require a carefully devised constitution and satisfactory rules sanctioned and published by Government.

The Matale Committee, on my resolution, has appointed a sub-committee to work out a constitution and rules for consideration.

AGRICULTURAL SHOWS.

A district agricultural show was held in Kandy during the Esala Perahera week, 1924, in connection with which Mr. A. N. Hutt of the Kacheheri and the Divisional Agricultural Officer acted as Joint Secretaries.

A village market show was held at Alawatugoda in Harispattu during April. Prizes were offered for the best produce tendered for sale at the market, and the success of the show was due to the energy of the Ratamahatmaya and the Agricultural Instructor of the area.

A village show was held at Rattota in Matale East during July. Arrangements in connection with this show were in the hands of the Ratamahatmaya and the Agricultural Instructor of the division. Mr. R. Senior White, who was President of the Show, took a keen interest, and a special feature of the show was the donation of agricultural implements as prizes.

During the month of August another show was held at Matale. The Secretary of the Urban Council and Mr. V. G. Perera, Agricultural Instructor of Matale South, acted as Joint Secretaries. On the whole the show was a success, and there was keen competition.

A show for Uda Hewaheta took place at Hanguranketa during May. The President of Village Tribunals of the area, assisted by the Agricultural Instructor, acted as Secretary.

All these shows were conducted under the auspices of the District Agricultural Committees concerned. The holding of these shows under the auspices of the District Agricultural Committees was found to be an easier method of organization.

AGRICULTURAL COMPETITIONS.

The following field competitions were carried out in 1924 :—

	Kandy.	Matale.	Nuwara Eliya.	Kegalla.
Paddy cultivation ..	2	6	1	4
Paddy transplanting ..	—	—	—	1
Vegetable gardens ..	3	3	—	1
Cacao gardens ..	1	1	—	—
Tea gardens ..	1	—	—	—

Departmental awards were given to these competitions.

The inspection, advising, and judging in connection with these competitions were carried out efficiently by the officers of the Agricultural Department in the Central Division with the co-operation of the Ratamahatmayas of the divisions.

Complete programmes for 1924–25 have been worked out and printed in leaflet form.

EXPERIMENT STATIONS.

The Nalanda Experiment Station contains 34 acres, and is in charge of Mr. G. de Silva, Agricultural Instructor. Sudu honderawala was grown in all the paddy plots during maha 1923–24. Seeds selected from 32 plants were sent to the Economic Botanist. The paddy plots lay fallow during yala. New standard paddy plots were made during maha 1924, and sun hemp seeds were sown on them. Pure-line types of paddy received from the Economic Botanist have been planted in triplicate series on the old paddy fields.

The tobacco crop has been graded and stored. Seeds from the best 25 plants in 3 acres of Cambodia and Durango cotton have been reserved for planting. Maize, sorghum, dhall, cow peas, and green gram have been sown in the cotton plots. Durango and Cambodia have been sown in the old tobacco plots. A new set of cooly lines was constructed towards the end of 1924.

The observation plot at Rambukkana is in charge of Agricultural Instructor C. P. Crispeyn, and is kept in clean condition.

SCHOOL AND HOME GARDENS.

In all there are 162 registered school gardens in the division, and the number awaiting registration is 20, mostly from the Kegalla District.

On the whole good practical work was done in these gardens, whilst the teaching of nature study lessons has been done under the supervision of officers of the Education Department.

The work of the home gardens has not made much progress during the year. A Vernacular Agricultural Instructor continued to visit and report on home gardens.

A sum of Rs. 595 has been distributed among teachers of good school gardens and Rs. 298 as prizes to pupils for work in home gardens.

CO-OPERATIVE SOCIETIES.

The annual audit of these societies was carried out in April and May by the Divisional Agricultural Officer, acting as Assistant Registrar, and Inspector S. B. Yatawara. Eight new societies were founded bringing the total to 45, and the registration of 3 societies was cancelled. The working capital of the societies has increased by over Rs. 10,000, and the percentage of overdue loans has been greatly reduced. The reserve of most of the societies has been deposited in the Ceylon Savings Bank. Training classes were held for the first time, and proved a great success. The Ratamahatmayas and Agricultural Instructors have helped to a great extent to further the co-operative movement.

G. G. AUCHINLECK,
Divisional Agricultural Officer, Central Division.

REPORT OF THE PERADENIYA FARM SCHOOL FOR THE YEAR 1924.

At the commencement of the year there were two classes of 14 second-year students who had entered in 1922 and 12 first-year students who had entered in 1923 receiving instruction in English; and one class of 12 teachers sent in May, 1923, by the Department of Education being instructed in Sinhalese. The second-year and teachers' classes completed their courses of instruction in March, and passed out of the school having taken their final examinations. One student failed to secure a pass.

The following is the pass and awards list of these two classes :—

AWARDS.

Medals.

"The Rajapakse Gold Medal," for the best all-round student of the course, presented by Gate Mudaliyar A. E. Rajapakse, J.P., awarded to C. St. J. C. Pereira.

Prizes.

His Excellency the Governor's Prize, presented for general efficiency in Practical Agriculture, awarded to M. S. Bandara.

For Agriculture :—

- 1st Prize, presented by Sir Solomon Dias Bandaranaike, Kt., awarded to W. B. Mahagedara.
2nd Prize, presented by Muhandiram N. Wickramaratne, awarded to M. S. Bandara.

For Agricultural Chemistry :—

- 1st Prize, presented by C. E. A. Dias, Esq., awarded to C. St. J. C. Pereira.
2nd Prize, presented by E. A. Elapata, Dissawe, awarded to M. S. Bandara.

For Agricultural Botany :—

- 1st Prize, presented by Mudaliyar V. M. Muttukumaru, awarded to S. Dharmarajah.
2nd Prize, presented by J. C. Ratwatte, Dissawe, awarded to D. Seneviratne.

For Agricultural Zoology :—

- 1st Prize, presented by the Hon. Sir H. Marcus Fernando, awarded to C. St. J. C. Pereira.
2nd Prize, presented by Dr. W. A. de Silva, awarded to D. Seneviratne.

For Economic Products :—

- 1st Prize, presented by H. L. de Mel, Esq., C.B.E., awarded to W. B. Mahagedara.
2nd Prize, presented by Graham Pandittesakere, Esq., awarded to S. Dharmarajah.

Certificates.

Class 1.—Cramer St. John Collette Pereira. W. B. Mahagedara.

Class 2.—Mendis Samuel Bandara.

Pass.—Subramaniam Dharmarajah, Alfred Frederick Goonewardene, Frederick Arthur Jayawardene, Seenithamby Nalla Ratnam, Dewawansa Seneviratne, Clarence Emmanuel Llewellyn de Silva, J. S. Tilton de Silva, Walter Peiris Goonetilleke, Joseph Adolphus Berkman Mackelvie, Edward Herbert Perera, Percy Hamlyn Rambukpotha.

Teachers' Class.

Silver Medal.—R. B. Herath.

Bronze Medals.—D. A. Edirisinghe, C. A. Perera.

Certificates.—L. D. Abraham, K. D. Charles, U. B. Dissanayake, D. A. Edirisinghe, P. B. Herat, R. B. Herath, D. C. S. Jayasakera, M. Mudiyansey, C. A. Perera, D. J. Rajapakse, H. K. Ratranhamy, W. A. Wanasinghe.

New classes were formed in May when 21 students were admitted to the first-year class on the English side and 12 vernacular teachers were received from the Department of Education. Two special students were sent from Lahsio by the Superintendent of the Southern Shan States, Burma, in order to study the cultivation and manufacture of tea. These students have been put into the school for one year till March next, after which they will go to estates in order to gain practical experience of tea. The annual tour of the school was undertaken early in January, as it was more convenient for all students to meet in Colombo before coming up to Peradeniya and then going down again in a month's time. The students visited places of agricultural interest in Colombo, Chilaw, and Negombo, where they were courteously received by, and were the guests of, Gate Mudaliyar A. E. Rajapakse. The prize-giving was held on March 29 immediately after the final examination. Sir Anton Bertram, Chief Justice, presided, and the awards and certificates were distributed by Lady Bertram.

The work of the students has not been very satisfactory. The educational qualifications of the majority are low, and it would appear that the standard of instruction imparted is too advanced for the class as a whole. Seventy per cent. of the students who have passed through the school since 1916 have been of the age of 19 years; while the educational qualification of 70 per cent. has been only the English School-leaving Certificate. The larger number of students that enter this school have no knowledge of the elementary sciences, and consequently find difficulty in pursuing the studies here. It would appear that a more practical course of instruction for a period of one year would meet the situation, inasmuch as the majority of students cannot maintain a sustained interest for a lengthened period. A small number of students, selected at the end of the first year, however, may be allowed to do more advanced studies, together with laboratory work and simple investigations in the second year.

The contemplated dairy has at last been established at the school, and would serve a useful purpose in enabling practical instruction to be given. The buildings were completed by the Public Works Department at the end of May. The cows which arrived at the end of March, and were temporarily housed at the Experiment Station, were brought over here on June 2. The herd is a small one, comprising 7 cows, 4 calves, and 1 stud bull of the Scinde breed.

The supply of milk was undertaken at once, as there was a demand for pure milk at Peradeniya. Milk was delivered at the bungalows of customers in sealed bottles at the rate of 20 cents a pint, equivalent to 25 cents the ordinary bottle. The cows came in practically full-milk, with the result that they went dry at the same time by the end of the year. Two cows are due to calve in January next. Daily individual records are being kept since June, and the calculated average daily yield of each cow for the lactation period of 273 days worked out at 14.5 pints or nearly 12 bottles. The average yield of the Scinde breed is about 300 gallons for the milking period of 9 months or 273 days. One cow is a stand-out animal and reached 500 gallons; four maintained the average; while two stood at 250 gallons. As this is the first season, and allowance must be made for altered climatic conditions and food, it is expected that better results would be obtained in future. Records are kept of the rations fed to individual cows, with the object of working out the cost of production of milk. Useful data with regard to the economic aspect of dairying should be available at the end of the second year.

The area under Guinea grass, which is all the fodder that is given, is inadequate. There are only 4 acres under grass at the school, which, when giving a maximum yield, would suffice for 8 animals. But a third of the area is steep hillside, on which the yield is particularly poor. The grass is in its first year; but a great improvement has already been effected following the application of cattle manure at the rate of 15 tons per acre.

The pen of white leghorns obtained in August, which commenced laying in October, 1923, showed a return of 200 eggs per bird at the end of the first year. There was a ready demand for day-old and 2-month old chicks which were disposed of at Re. 1 and Rs. 2.50 each, respectively.

Teachers' Class.—The work of this class has not been satisfactory. One difficulty is in regard to the selection of the teachers. The present class includes trained and untrained, head and assistant teachers. The trained teachers have had a foundation of general science at the Training College, and hence are able to proceed directly to agriculture as an applied science. On the other hand, the men who have not been to the Training College require to be given the foundation at this school, and this presents a second difficulty, inasmuch as an Instructor qualified for this purpose is not available. It is realized that the nature of the instruction received here by the teachers should fit them for the specific work of conducting elementary agricultural and nature study classes in the schools. With this end in view an attempt was made to hold classes with a group of 15 boys selected from the Anglo-vernacular school at Peradeniya. Instructional work was correlated with practical work in a school garden planned by the teachers under training. The benefits of this scheme were apparent immediately. Interest in the undertaking, however, could not be maintained, mainly owing to the want of an Instructor to direct work, since it was not possible for me to attend every class and do the guidance myself, and this presents the third difficulty in the progress of the teachers' class work. An urgent necessity is the appointment of a bilingual trained teacher to be trained here in agriculture for a short period.

Staff.—The staff was strengthened by the addition of Mr. J. A. Alles from the Southern Division who joined the school in May. It is necessary, however, that the staff be further increased, in order that students may be given a more practical training, for which purpose each officer should undertake a specific section of work, and more or less specialize in it.

Estate accounts continued to be taken by Mr. Claude Pereira. Demonstration classes in planting and in horticulture have been conducted by the Manager, Experiment Station, Peradeniya, and the Curator, Botanic Gardens, respectively. Lectures in co-operation have been given by the Secretary, Board of Control, Co-operative Societies. Through the courtesy of the Superintendent of New Peradeniya estate, periodical visits have been made to the factory in order to gain practical experience in the manufacture of tea and rubber.

The school and the hostel have been in the immediate charge of Mr. J. C. Driberg who continued as Farm School Officer. Messrs. J. A. Alles, R. S. D. Jansz, and E. S. Jayasundera have worked assiduously in the interest of the school.

I desire to make special mention of Mr. E. S. Jayasundera, who was in charge of the dairy, and discharged his duties with great interest and keenness. I wish to record my appreciation of his services.

A pleasant feature is the spirit of co-operation that prevailed among the members of the school staff.

Mr. G. Wickramaratne continued in charge of the work of the teachers' class, and also took a Saturday class with teachers sent by the Peradeniya Training Colony.

J. C. DRIEBERG,
Farm School Officer, Peradeniya.

SOUTHERN.

THE COTTON EXPERIMENTAL STATION AT AMBALANTOTA.

THE cotton was grown on the same land as was cultivated during the previous two years. The land was cleared of the old stalks in August, and these were thoroughly burnt. In August and September the land was ploughed by a Cletrac tractor with a disc plough. After ploughing, the land was disc-harrowed once. The ploughing and harrowing were not done satisfactorily, owing chiefly to abnormal rains and consequent slipping of the tractor, but also to inexperienced ploughmen. Between the time of harrowing and the sowing of the cotton seed with the break of the north-east monsoon, there were slight showers which caused all the weeds on the ploughed and harrowed surface to germinate later. It is imperative for successful cultivation to harrow immediately before sowing, or otherwise the weeds grow much quicker and smother out the cotton seedlings. The cotton seeds were eventually sown on October 17, and although the seeds germinated well, the weeds had also become well established. Weeding with mamoties could not be carried out owing to rains, and in order to save the crop, hand weeding along the drills was resorted to. This raised the cost of production of the crop very considerably. In all three weedings were given. The cost being more than one-third of all the expenditure. One fact observed was that the last plot harrowed before sowing cut down weeding expenses by about 66 per cent. and gave a higher yield.

The rainfall for the first period was as follows:—

1923-24.

	Inches.	Days.		Inches.	Days.
September ..	9.35	20	January ..	3.15	4
October ..	6.38	10	February ..	1.17	1
November ..	8.41	9	March ..	9.08	15
December ..	7.36	13			

Total 44.90 inches against an average taken over the last 55 years as follows:—

	Inches.	Days.		Inches.	Days.
September ..	2.33	7	January ..	3.34	7
October ..	4.81	11	February ..	1.45	4
November ..	6.78	13	March ..	2.18	6
December ..	5.44	10			

Total 26.33 inches.

There were two new varieties introduced, viz., Watts Long Staple and Zululand Hybrid from South Africa. Both of these varieties did well. Out of these two, Zululand Hybrid did better than any of the other varieties grown this year.

Flowering on all the plots was very free and on an average numbered over 300 on a plant, but owing to too much rain pollination was interfered with and the bolls did not set.

Manuring.—Trials were made with nitrate of soda at the first hilling up of the young plants at the rate of 100 lb. per acre. The results, however, in yields were negligible, owing, I consider, to the weather conditions then prevailing.

It is also necessary to mention here the damage done by elephants during the latter part of the season. These animals entered the open cotton space at night, and did more damage incidentally by stripping the plants of all the leaves, bolls, &c., rather than tramping on the plants.

Seed selection was carried out on all the plots, and plants not true to type were uprooted. The seed from six of the best plants of the Durango variety will receive special attention next season.

Two cattle have been bought for work on the plots, and also a much heavier manuring programme will be carried out on next year's crop.

The yields from the various plots were as follows :—

Plot No. 1 (5 Acres).	Cwt. qr. lb.	Plot No. 7 (5 Acres).	Cwt. qr. lb.
Durango Local* ..	.. 12 3 10	Cambodia Strain 15* ..	.. 10 1 0
Plot No. 2 (5 Acres).		Plot No. 8 (5 Acres).	
Durango American ..	.. 14 2 2	Watts Long Staple ..	.. 12 1 24
Plot No. 3 (5 Acres).		Plot No. 9 (5 Acres).	
Cambodia Strain 15 ..	.. 8 2 24	Durango Local selected ..	.. 12 3 20
Plot No. 4 (5 Acres).		(This plot was weeded before rains came.)	
South African* ..	.. 5 3 10	Plot No. 10 (1 Acre).	
Plot No. 5 (5 Acres.)		Zululand Hybrid ..	.. 3 1 11
Durango American* ..	.. 6 3 8	Plot No. 11 (1 Acre).	
Plot No. 6 (5 Acres).		Sea Island ..	.. 2 0 12
Durango Local ..	.. 6 1 5	Plot No. 12 (1 Acre).	
		Cambodia Local ..	.. 1 0 20
		(Poor germination.)	

* Manured with nitrate of soda at the rate of 100 lb. per acre.

The cost per acre in comparison with the two previous years was as follows :—

	1921-22.	1922-23.	1923-24.
<i>Capital Expenditure.</i>	Rs. c.	Rs. c.	Rs. c.
1. Clearing and burning ..	31 46	—	0 60
2. Building sheds for coolies ..	2 97	—	—
3. Rent for office and store ..	—	4 34	7 32
4. Fencing ..	6 3	0 78	4 48
5. Implements ..	9 83	—	2 95
6. Bags ..	3 26	—	—
<i>Recurring Expenditure.</i>			
1. Preparation of land sowing ..	24 28	31 8	31 61
2. Cost of seed ..	1 0	—	—
3. Weeding ..	21 30	16 64	49 85
4. Manuring ..	—	5 65	5 55
5. Pests and diseases ..	1 16	2 37	—
6. Harvesting ..	16 30	13 5	3 89
7. Clearing cotton ..	2 8	0 78	—
8. Transport ..	3 14	2 41	2 30
9. Supervision ..	—	3 68	6 72
10. Watching ..	—	3 23	3 35
11. Sundries ..	1 77	1 89	2 5
	124 58	85 90	120 67

A great deal more interest was taken in these trials by the goiyas this year than previously, and in consequence more than 3,000 acres have been applied for in 1-acre blocks by the small holders this season.

These figures of cost I consider will not serve any useful purpose from an estate point of view, owing to—

- (1) The necessity for a trained man to be on the spot in handling labour—also now that the goiya is growing cotton himself—labour is much scarcer.
- (2) The acreage would be greater, and thereby overhead charges should be reduced.
- (3) All cotton would be ginned, and therefore fetch a higher price. The loss of cotton by thinning out plants not true to type also would not arise.

The manuring of the crop has not resulted in any appreciable difference in the yield, and in consequence the following combinations and quantities of manures are being experimented with on the 1924-25 crop, *i.e.* :—

Plot.	Plot.	Plot.
245 lb. Superphosphate .. 3	220 lb. Nitrate of soda .. 5	68 lb. Sulphate of potash .. 14
100 lb. Sulphate of potash .. 3	165 lb. Superphosphate .. 5	1500 lb. Superphosphate .. 15
Do. .. 6	68 lb. Sulphate of potash .. 5	500 lb. Do. .. 18
Do. .. 9	Do. .. 8	500 lb. Do. .. 20
Do. .. 12	Do. .. 11	500 lb. Do. .. 23

Making altogether :—

Sulphate of potash ..	672
Kainit ..	2,100
Superphosphate ..	4,640
Nitrate of soda ..	880 for the 45 acres.

Further examination and reports have been made on the above varieties of cotton as follows:—

Name of Firm.	Variety.	Remarks.
Delmege, Forsyth & Co., Ltd.	No. 1, Cambodia ..	Is a very short staple cotton, rather mixed, and only suitable for their local or Indian mills.
Do.	.. No. 2, Durango ..	This is an excellent sample in every way, although hardly so good in colour as No. 3. The fibre, however, is better. This would sell at any time for mills in this country.
Do.	.. No. 3, Watts Long Staple	This is very fine indeed with a slightly better colour than No. 2. Both this and No. 2 would be readily saleable for consumption in this country at about the same price as mid-American.
Do.	.. No. 4, Zululand Hybrid	Very short staple, and only suitable for their local or Indian mills.
Hayley & Co.	.. Cambodia ..	Highly satisfactory article to sell.
Empire Cotton Growing Corporation, London	.. Egyptian ..	About good. Fair in grade. Some strain, staple $1\frac{1}{4}$ in. to $\frac{1}{8}$ in. irregular in length but strong, rather badly ginned.
Do.	.. Sea Island ..	Badly ginned, very dull, staple fine, long, and strong, but much mixed with short.

The report of Delmege, Forsyth & Co., Ltd., on Zululand Hybrid is not in agreement with the measurements of the staple we have carried out, or with the opinion of the Manager of the Weaving and Spinning Mills Co., Ltd., Colombo. The Zululand Hybrid is certainly a coarser fibre cotton, but the staple is as long as that of Watts Long Staple. It may be that this firm was sent a very poor sample.

The Empire Cotton Growing Corporation has also been sent the lint from the under-mentioned varieties of cotton to test for their spinning qualities:—Durango, Watts Long Staple, Zululand Hybrid, and Sea Island.

SMALL HOLDERS' SCHEME.

In continuation of my last year's report the following collecting centres were decided upon for the buying of the cotton crop:—

Paranagam palata ..	..	.. Middeniya
Wewgam palata ..	..	.. Talawa
Ihalawalakada palata ..	..	.. Angunakolapellessa
Pahalawalakada palata ..	..	.. Hatagala
Modaragam palata ..	..	.. Ambalantota
Magam pattu ..	..	.. Hambantota

It was found necessary to distribute bags to the goiyas for the collecting of the crop, and these were provided by the Manager of the Ceylon Spinning and Weaving Mills Co., Ltd., Colombo, who had bought the whole crop.

Two collections were made, the first in March and the second in May. Two days were allowed at each station. Cash was paid direct to the goiya, and the price per cwt. paid at each station was based upon the guaranteed price of Rs. 25 per cwt. given to the Government by the Ceylon Spinning and Weaving Mills Company, Colombo. From this guaranteed price, transport charges from each collecting centre to Colombo, a headman's bonus of 50 cents per cwt. and seed, and wharf charges had to be deducted. The prices received by the goiya at each centre for clean cotton were as follows:—

	Per Cwt. Rs. c.		Per Cwt. Rs. c.
Middeniya ..	.. 20 0	Hatagala ..	.. 20 50
Talawa ..	.. 20 0	Ambalantota ..	.. 21 0
Angunakolapellessa ..	.. 20 50	Hambantota ..	.. 22 50

The total amount of cotton purchased amounted to 710 cwt. 1 qr. clean cotton and 15 cwt. 3 qr. 24 lb. of soiled cotton, the total value of both being Rs. 18,070·91.

This being the first attempt at growing cotton by the goiyas, these plots which served as demonstration plots were well scattered about the district as can be seen by the amount of cotton bought in from each of the police officer's divisions as follows:—

	Cwt. qr. lb.		Cwt. qr. lb.
Okandeyaya ..	.. 48 1 14	Welipatanwila ..	.. 77 2 22
Kudagalara ..	.. 29 0 17	Labuhangoda ..	.. 6 0 26
Middeniya ..	.. 24 1 7½	Melleketigoda ..	.. 11 0 20
Murungasyaya ..	.. 18 0 16	Talawa ..	.. 16 0 24
Kariamaditta ..	.. 14 3 17	Debokkawa ..	.. 9 0 15
Bata-ata ..	.. 28 1 2½	Hatagala ..	.. 28 0 22½
Pallegama ..	.. 13 0 22	Mulana ..	.. 14 3 15
Lunama ..	.. 56 3 7	Etbatuwa ..	.. 9 1 4
Sapugahayaya ..	.. 3 1 17	Siambalakota ..	.. 9 3 22½
Welpitiya ..	.. 37 2 26½	Tawaluwilla ..	.. 45 0 14
Hellela ..	.. 1 2 9	Bemmiyanwilla ..	.. 6 1 22
Dabarella ..	.. 75 0 20	Magam pattu ..	.. 57 0 8
Uswewa ..	.. 4 0 1	Kiula ..	.. 7 3 21
Angunakolapellessa ..	.. 14 3 13	Kudagoda ..	.. 2 3 6½
Minietiliya ..	.. 11 3 16	Hilwalgala ..	.. 25 3 7

The majority of cotton was brought to the collecting centres in excellent condition, having been well cleaned and dried.

The results obtained have greatly encouraged the goiya, and for the 1924-25 crop a very much greater demand for seed has been made. The following quantities were supplied to the under-mentioned districts—the distribution being worked on the same principle as last year, *i.e.*, through the headmen.

East Giruwa Pattu : 2,337 Acres.

	Acres.
Paranagam palata	755
Wewgam palata	750
Modaragam palata	210
Pahalawalakada	200
Ihalawalakada	300
Schools	22

West Giruwa Pattu : 240 Acres.

	Acres.
Tangalla	100
Katuwana	140

Magam Pattu : 450 Acres.

	Acres.
Hambantota	350
Tissamaharama	100

The clearing and burning of the jungle on the 1-acre blocks were very much better than last year. General planting was however delayed until the end of October, 27th to 31st, owing to the lateness of the north-east monsoon. The crops this year have suffered very badly from the attack of jungle rats, and this was especially the case where seeds had been planted and did not germinate quickly owing to the want of moisture. On the whole, however, the crops are doing fairly well, although the goiya does not yet understand the value of clean weeding and thinning out, only leaving at the most two plants to one "sett."

MINOR EXPERIMENTAL STATIONS.

Ambalantota.

The sisal hemp plants have made excellent growth during the last year. Green gram grows well at Ambalantota, and is also very profitable if grown in small quantities. This crop is being tried as a rotation crop for cotton, but this will, I fear, necessitate the finding of other markets at a greater distance from the plots.

Weligama.

This station has been planted up with all the available different varieties of citronella grass to compare the yields and many other obvious agricultural questions. A small distillery will be built on the station during the year.

Batapola.

This is entirely a vegetable demonstration garden, and great credit is due to the Instructor for keeping it to such a high standard. This has been attained by the continual rotating of crops and the good jats grown. The plot of pineapples is now coming into bearing, and a good yield is certain. The attacks by rooks have not caused serious trouble yet. Thefts are more common and difficult to stop. Potted plants, cuttings, and seeds of many varieties have been distributed throughout the district and to home gardens.

The roselle (*Hibiscus sabdariffa*) grows most luxuriously here, and the fruits are being made into jams.

Bandaragama.

The tapping of the rubber trees at this garden have commenced. All the trees were measured at 24 inches from the ground and then divided into two lots, A and B. The group of trees in block A are being tapped at 24 inches on alternate days, and the trees in block B are being tapped at 16 inches on every third day. A small drying shed has been fixed up on the station.

Paddy Manurial Experiments, 1924.

There were 123 paddy manurial trials conducted in the division during maha 1923-24 and yala 1924. Of these, 54 were conducted in the Kalutara District : Kalupahana (12), Edurugala (12), Horawala (10), Lewanduwa (10), Millekande (10); 28 were conducted in the Galle District, *viz.* : Halpatota (12), Heenatigala (8), Bentota (4), Elpitiya (4); and also (41) in the Matara District : Batuwita (16), Wattegama (4), and Telijjawila (21).

All the trials conducted were with artificial manures, and, in some instances, green leaf was added. Wherever this was done the yields were invariably heavier than the rest of the plots. A more general use of green leaf could not be adopted owing to the difficulty of collecting the leaf in large quantities without incurring heavy cost. To obtain any material benefit 1,500 lb. of leaf at least should be applied per acre.

The manures used were : Ephos phosphate, superphosphate, Belgian phosphate, bone meal, animal meal, crushed fish, basic slag, Tonkin mineral phosphate, and nitrate of soda. The quantities applied varied from 112 lb. to 168 lb. per acre.

Ephos Phosphate.—Wherever this was tried, the results were invariably good, especially when given with a dressing of green leaf in addition. The cost is low when compared with bone meal, and can safely be recommended as a reliable manure for paddy. At Elpitiya in Bentota-Walallawiti korale an acre dressed with 168 lb. of this manure gave a yield of 28 bushels, whereas the control plot yielded only 10 bushels.

Superphosphate.—Only one trial was conducted with this, and though the yield was slightly above the control, the results cannot be said to be encouraging. Further trials are being continued.

Bone Meal.—A manure that has given excellent results in each trial, but the price is high when compared with ephos phosphate and crushed fish manures.

Belgian Phosphate.—Two trials were conducted at Telijjawila with this, but the results were not satisfactory, and no further trials are contemplated.

Animal Meal.—The results obtained with this manure at Horawala in Pasdun korale west of the Kalutara District were fairly satisfactory. The increase over control was 7 bushels per acre. The cost of this manure is fairly high, but in this instance the yield left a fair margin of profits after deducting the cost of manure. There are better manures available on the market for paddy.

Crushed Fish.—The trials with this manure have been very satisfactory, especially when applied with a dressing of leaf in addition, and compares very favourably with bone meal and ephos phosphate. At Batuwita in Gangaboda pattu of the Matara District an acre dressed with 150 lb. of this manure gave a yield of 56½ bushels or 23½ over control. And at Lewanduwa in Pasdun korale west of the Kalutara District an increase of 8½ bushels over control has been obtained.

Basic Slag.—Trials with this manure were conducted in peaty and boggy soil in Pasdun korale west and Bentota. The results are satisfactory, and fairly good increases in yield have been obtained, an increase of 5 bushels over control at Bentota, and an increase of 7½ bushels over control at Lewanduwa in Pasdun korale west.

Tonkin Mineral Phosphate.—The trial with this manure at Telijjawila proved a failure. This, I consider, however, was due to the floods that occurred immediately after the manures had been applied.

Nitrate of Soda.—Applications of nitrate of soda were given a fortnight after sowing, but no appreciable benefit has been obtained, and no further trials are contemplated.

SALT WATER EXPERIMENT.

The trials with Makook salt water resisting paddy imported from Hong Kong gave poor results. But this was due to the very low percentage of the germination of the seed, rather than to its qualities. Seed has been collected for trials this coming maha season.

KOBOWELLA PADDY EXPERIMENT.

A paddy experiment is being conducted at Kobowella in conjunction with the Economic Botanist. The special features of this experiment will be the selection of seed for "Pure-line" and mass seed selection trials.

SHOWS AND COMPETITIONS, 1924.

Shows.—A small market show was held at Kekanadura in the Wellaboda pattu of Matara District. The occasion was really the opening of a market here, and prizes were awarded to the best specimens of vegetables, &c., brought for sale. The prizes were composed of agricultural implements.

Competitions.—A series of competitions was held in the division during the year. These were all confined to members of Co-operative Societies, excepting two in the Hambantota District. This condition was included in order to encourage the present members and to induce others to join. The total number of entries for the various competitions was very satisfactory. A large number of societies took part, and the membership has also increased to some extent.

PADDY.

Galle District.—A good number of the societies in the district took part, and the number of entries totalled 101. It was gratifying to see that most of the competitors had taken an intelligent interest in the competition, and the result was a very satisfactory show of well-cultivated fields scattered all over the district. The yields were quite satisfactory, about 40 per cent., giving an average of over 50 bushels per acre.

The following societies took part:—Hinidum pattu, Udugama, Akmimana, Batapola, Elpitiya, Wellaboda pattu.

Matara District.—Three competitions in paddy transplanting were held in the district—one for each of the following pattus for the societies within the pattu:—Kandaboda pattu, Morawak korale, and Weligam korale.

The competition was very keen, and the system of paddy cultivation by transplanting is gradually gaining ground. There were plots scattered all over the district, and if it was not for the lack of a little co-operation between the co-owners of large tracts, greater areas might easily be brought under transplanting. The societies which competed were:—Kandaboda pattu, Deniyaya, Urubokka, Telijjawila, and Weligama.

Number of Entries.—Kandaboda pattu 17, Morawak korale 4, Weligam korale 24.

Kalutara District.—This competition for the best plot of paddy was confined to Co-operative Societies in Pasdun korale west. The number of entries was good and competition keen. The following societies took part:—Matugama, Dodangoda, Welipenna, Ittapana, Megama, Nauthuduwa.

Number of Entries.—66.

VEGETABLE GARDEN COMPETITIONS.

Galle District.—There were six competitions for vegetable gardens, and the following societies took part:—Akmimana, Wellaboda, Batapola, Elpitiya, and Hiniduma. The number of entries was not so satisfactory as was expected, but this was not surprising considering the abnormal weather that prevailed in the district during the year. However, the gardens that competed were fairly satisfactory.

Number of Entries.—27.

Matara District.—There were three competitions in the Matara District for each of the following pattus:—Gangaboda pattu, Wellaboda pattu, and Four Gravets. The following societies competed, and there were 39 entries:—Wellaboda, Gangaboda, and Gravets Society.

Number of Entries.—Gangaboda pattu 10, Wellaboda pattu 18, Four Gravets 11.

Kalutara District.—The competitions were all confined to Pasdun korale west, and the following societies sent in entries:—Matugama, Dodangoda, Welipenna, Ittapana, Megama, and Nauthuduwa.

Number of Entries.—67.

PADDY.

Hambantota District.—In Magam pattu three prizes of the value of Rs. 50 were offered for the three best paddy plots. There were 25 entries, and the plots were well cultivated.

COTTON.

Hambantota District.—As an encouragement to the peasant cotton growers in the district, Mr. E. S. Captain of the Ceylon Spinning and Weaving Mills Co., Ltd., offered five prizes to the value of Rs. 175 for competition in each of the five divisions of East Giruwa pattu. There were in all 80 entries, and the competitions were well appreciated.

BABAPULLE GOLD MEDAL FOR PADDY.

The competition for the gold medal offered by Dr. C. Brin-Babapulle took place during the year. The competition was confined to members of Co-operative Societies in the Kalutara District. Ten societies took part.

FERNANDO WAIDYASEKERA PRIZE.

The prize of Rs. 100 offered by Muhammadram Waidyasekera of Panadure for competition among school gardens in the Kalutara District was competed for during the year. This has encouraged the teachers considerably, and the gardens have been brought to a better standard. The competition is to be repeated in 1925.

POLICE GARDEN COMPETITION.

Three competitions for gardening were held during the year between the members of the Police Force in the Galle, Matara, and Hambantota Districts. These competitions have given a fresh impetus to gardening by the men of the Force, and an atmosphere of healthy rivalry prevailed everywhere. The prizes were keenly contested, every man having something to show even if it was only a solitary bed no bigger than 4 feet by 3 feet. Such competitions improved the general appearance of the stations considerably.

SCHOOL GARDENS.

The number of registered school gardens in the division is 140, as follows :—

Kalutara District	..	42	Matara District	..	33
Galle District	..	30	Hambantota District	..	21

The number of registered grant-in-aid school gardens is 14 :

Kalutara District	..	4	Matara District	..	3
Galle District	..	7			

Vegetable and flower seeds were distributed to all the registered school gardens in May and October.

Fruit plants were supplied to a large number of school gardens, and the fruit plots in many of the gardens have been almost fully planted.

A supply of king yam (Jaffna yam) obtained from the Northern Division was distributed to 17 school gardens, most of these being in the Hambantota District, where yams are very rarely grown.

Duranta cuttings have been supplied to 29 school gardens to grow hedges. There are also about 12 school gardens where these hedges are being successfully grown from the cuttings distributed during the previous years.

The Agricultural Instructors in charge of the Batapola and Weligama Demonstration Gardens are growing Duranta hedges round these gardens, so that cuttings may be obtained from these for distribution to school gardens.

Seeds of *Clitoria maritima* have been supplied to 21 school gardens where shade is necessary.

Four newly registered school gardens were furnished with sets of tools during the year from funds voted by the District School Committees. The District School Committee funds were—

		For Registration of School Gardens.			For Book-keeping.	
		Rs.	c.		Rs.	c.
Kalutara District	..	..	100 0	..	25	0
Galle District	..	..	225 0	..	—	—
Matara District	..	..	—	..	—	—
Hambantota District	..	..	—	..	50	0

Implements.—The majority of the registered school gardens have been supplied with new tools. The improvement in the school garden work is chiefly due to this. However, the work has been handicapped to some extent owing to the want of fences and wells. The District School Committees have been unable to attend to these requirements for want of funds.

Awards to the value of Rs. 700 and also certificates were granted during the year to 55 Government school teachers who did good work. Awards amounting to Rs. 200 were granted to 66 boys who did very satisfactory work in home gardens.

Marked improvement has taken place in school gardens in the Kalutara District, largely as a result of the annual prize offered by Muhammadram W. D. Fernando Waidyasekera of Panadure.

The registered grant-in-aid school gardens have not as yet reached a satisfactory standard. Their progress is much handicapped for the want of a sufficiency of garden tools, of fences, and wells.

School gardens under the supervision of teachers trained at the School of Tropical Agriculture have shown very satisfactory results.

The Inspector of School Gardens has paid special and careful attention to nature teaching in schools during the year. Teachers and pupils are being encouraged to grow some plants in the school garden with the object of studying their mode of growth in the various stages.

A conference of teachers was held at KL Alutgama boys' vernacular school where there is one of the finest school gardens of the district. There were 29 teachers present, and the conference was greatly appreciated. Conferences of this kind help a great deal to encourage the backward teachers.

The teachers in the Hambantota District have grown cotton in their school gardens, and have helped considerably to popularize this new crop.

Home Gardens.—Special attention has been paid by the Inspector to this important part of school garden work during the year. He has visited some of these home gardens whenever he found time to do so, and the result is reported to be gratifying. These little gardens have greatly improved in number and efficiency during the last two years. Pupils in all schools where there are registered school gardens have planted home gardens. These home gardens are under the inspection of the teachers. In this division fully 4,000 home gardens have been established. Records showing the names of pupils who have planted home gardens, crops grown, &c., are kept at each school.

Some of the chief points that deserve special attention in connection with the school gardens are—

- (1) Provision of suitable fences and wells.
- (2) Removal of permanent trees which interfere with the gardening.
- (3) Selection of sites suitable for gardening for new schools.

FOOD PRODUCTION COMMITTEE MEETINGS.

The Food Production Committee of the Matara District has been reorganized, and will in future be known as the Matara District Agricultural Committee. The Committee will meet once in every three months.

CO-OPERATIVE WORK.

A separate report on the work done in connection with the societies in the Southern Division will be found elsewhere.

CORRESPONDENCE.

The number of letters dealt with in this office during 1924 was 11,448, plus occasional circulars to all the Co-operative Societies and school gardens in the division.

FRED. BURNETT,
Divisional Agricultural Officer, Southern Division.

NORTHERN.

EXPERIMENT STATION, JAFFNA.

Farm Improvements.—Good progress was made with the school buildings. In addition to the school blocks, milk room, and engine shed mentioned in last year's report, the hostel block is nearing completion.

The fitting of the new well with a 16-horse-power Ruston-Hornsby oil engine and a 4-in. centrifugal pump was completed. The pump cannot be used for irrigation until a reservoir has been provided to control the water raised.

A double Mhote made at the Government Factory was fitted to well No. 2, and demonstrates an economical and simple method of raising water from wells.

A concrete main channel, 535 feet in length, to serve the area irrigable from the new pump, and also a channel, 25 feet in length, provided with trough and irrigation head for the double Mhote, have been constructed.

A ring fence for the Farm Manager's quarters and a grazing paddock for the dairy cows were completed.

Road improvement was continued, and about 300 cartloads of metal were spread over the occupation roads.

The development of new areas for irrigation was done; about three-quarter of an acre was lowered and levelled during the year.

Implements.—The farm is now equipped with a fair collection of implements. The Meston and Monsoon ploughs have proved useful for garden lands. The practice of loaning out these implements is increasingly popular amongst the villagers.

Live Stock.—Six coast bulls for draught purposes were maintained on the farm during the year.

Season.—The distribution of rain has been unsatisfactory, although the total for the year exceeded the average.

Tobacco.—The growth of this main crop was checked by abnormal rains in December and January, 1923:—

- (a) *White Burley: Spacing Experiment.*—The plants were spaced 3 feet by 3 feet, $2\frac{1}{2}$ feet by $2\frac{1}{2}$ feet, and 2 feet by 2 feet. The results went in favour of the $2\frac{1}{2}$ feet by $2\frac{1}{2}$ feet spacing.
- (b) *White Burley: Seed Test.*—Seed of White Burley was imported from America and India for trial, as the local White Burley (seed of which was originally obtained from Kentucky in 1914) had apparently degenerated in quality. The American White Burley which was of a narrow type produced brighter and thinner leaves than the Indian and local White Burley. The yields of Indian and local White Burley were, however, higher than the American.
- (c) *White Burley: Dry Cultivation Experiment.*—A successful attempt was made to grow 200 plants of White Burley without irrigation, but employing methods of dry farming. The crop yielded 25 lb. of cured tobacco, i.e., approximately 400 lb. per acre. The total yield of cured White Burley tobacco from an area of $1\frac{1}{2}$ acre was 856 lb., or approximately 570 lb. per acre.
- (d) *Local Cigar Variety: Manurial Experiment.*—This experiment which was started in 1923 to compare the various methods of manuring practised in this locality was continued. The residual effect of these manures on the succeeding crops of kurakkan and tenai have also been noted.
- (e) *The White Burley Purchase Scheme.*—The cultivation of White Burley in this district is rapidly increasing. During the year under review 63 cultivators in 14 villages grew 24,719 plants, of which 11,280 plants were delivered at Experiment Station for curing, and were paid for by results at 85 cents per lb. The remaining plants were cured by the cultivators and delivered as cured tobacco, for which 90 cents per lb. was paid. The crop of 3,864 lb. was sold on the London market at 1s. 7d. per lb. The brokers sent a favourable report.

Chillies: Single Plant Selections.—The trials were continued.

Tenai (Italian Millet).—(a) A bulk crop of tenai sown after tobacco gave a good yield of 1,458 lb. of grain per acre; (b) *Selections:* These trials were continued.

Kurakkan.—(a) *Selections:* These trials were continued; (b) *Karuppan:* A standard local variety. A plot of $\frac{1}{2}$ acre gave a low yield of 964 lb. of grain per acre on account of the heavy rains at the time of harvest which caused the shedding of grain.

Samai (Panicum mitacum). Sown amidst a $\frac{1}{2}$ acre plot of yams, and gave a yield of 1,040 lb. of grain per acre.

Maize.—Hickory king and small dent maize were grown as a grain crop, and yielded 1,072 lb. and 1,728 lb. of grain per acre respectively.

Fodder Crops.—The cultivation of cholam as a fodder crop is being taken up in this district:

- (a) *Periyamanjal Cholam*.—A standard variety from South India was sown as a main crop for fodder in an area of $1\frac{1}{2}$ acre. About half of this crop was cut green for a silage experiment. The rest of the area was cut for grain, and yielded 4,500 lb. of straw and 192 lb. of grain.
- (b) *Guineas grass* was cut four times during the year, and a yield of 25,000 lb. per acre was obtained.
- (c) *Napier's grass*, which was planted in the previous year, grew rapidly, and yielded 32,000 lb. per acre. The fodder was readily eaten by the cattle.
- (d) *Dhall* proved useful in supplementing a shortage of fodder during the dry season.
- (e) *Cow Peas* grown along the bunds provided a useful quantity of fodder during the months of February and March.
- (f) A fodder variety of *Cluster beans* grew well, but the crop was reserved for seed for extensive trials in the next season.
- (g) *Kolukattai Grass* (*Pennisetum cenchroides*) was sown in the paddock. This grass is said to thrive well under dry conditions and stand grazing well.
- (h) *Lucerne*.—This was sown in the exotic crop plots. The seed failed to germinate.

Tomatoes.—About 600 plants of tomatoes were planted in the vegetable plots, and 890 lb. of ripe fruits and 1,663 green tomatoes were obtained. The spacing was $2\frac{1}{2}$ feet by $2\frac{1}{2}$ feet.

Turmeric.—A plot of $\frac{1}{2}$ of an acre yielded rhizomes at the rate of 16,800 lb. per acre.

Cotton Varieties.—(a) Five Indian varieties and one local cotton were sown in exotic crop plots. Sufficient seed was obtained for comparative trials next year: (b) *Cambodia Cotton*: A yield of only 160 lb. per acre was obtained.

Groundnuts.—A rain-fed crop was grown in field Nos. 8 and 13, and yielded 1,020 lb. and 713 lb. per acre respectively. The total yield from an area of $1\frac{1}{2}$ was 1,400 lb.

Sweet Potato.—This crop failed entirely due to weevils.

Green Gram.—This was sown immediately after the harvest of tenai in field No. 7. It gave a poor yield of 160 lb. per acre. The vines were collected and given to the cattle as fodder.

Yams.—There were 14 varieties under trial.

Cucurbits.—The six introduced varieties of pumpkins mentioned in last year's report were grown again with success. Gourds and melons did equally well.

Plantains.—There are 13 varieties of plantains. The long period of drought from May to July and the strong blowing of the south-west winds adversely affected the crop. The development of bunches was consequently poor. About 95 bunches were obtained from this crop which occupies half an acre.

Onion.—This crop was a failure. It yielded 1,360 lb. per acre.

Green Manure Crops.—Trials were made with sun hemp, *Crotalaria striata*, *Tephrosea purpurea*, and *T. candida*.

Small plots of linseed, coriander, cummin, and carrot thrived well.

Seed Distribution.—The following quantities of seeds were distributed from this Station during the year:—

Tobacco seeds	.. 132 oz.	Tobacco seedling	.. 14,555
Periyamanjal cholam	.. 336½ lb.	Dhall ..	.. 6½ measures
Chillies ..	.. 9 "	Cambu..	.. 5½ "
Cow peas seed	.. 1½ measure	Cotton seed	.. 32½ lb.
Coriander	.. 9½ lb.	Groundnut	.. 55½ "
Kurakkan	.. 3 measures	Maize ..	.. 11½ measures
Tomato seedlings	.. 125	Horse gram	.. 20 "
Guinea grass sets	.. 250	Vegetable seed	.. 2 packets

DRY ZONE EXPERIMENT STATION, ANURADHAPURA.

New Clearings. The most important work of the year was in connection with the opening of new paddy fields in the area of 100 acres cleared for establishing a paddy seed farm.

The labour force was concentrated on this work particularly during the latter part of the year, when the prison labour allowed for this class of work only was withdrawn owing to want of suitable accommodation in the local jail during the rainy season.

Twenty-one acres have been converted into regular paddy fields of $\frac{1}{2}$ -acre plots, and a great deal of levelling was found necessary to bring these fields into shape.

The required channels and drains for irrigating $10\frac{1}{2}$ acres of these fields have been cut; and in this portion, 17 strains of selected paddy produced by the Economic Botanist have been sown for seed multiplication and for tests on a field scale. These paddies vary in age from 155–179 days.

Eight and a half acres of the remaining area have been sown with hill paddy (tilanayagam)—as this land is unirrigable until an aqueduct across the railway line has been constructed.

The whole area has been fenced with barbed wire.

Sisal.—The first planting was done in 1918, and the area under sisal was extended during 1919–20 and 1921. The removal of suckers, which had been at first practised, was dropped, as also was clean weeding, but the plots are kept free from large weed and jungle growth.

A negligible amount of paling was experienced during the third and fourth years, but there has been a rapid increase of this during the fifth and sixth years.

Some records kept indicate that an average yield of 40 leaves per plant annually can be obtained.

The length of the leaf varied from 3–5½ ft.

The weight of the leaf varied from 1–1¼ lb.

Extraction of fibre was carried on regularly throughout the year, excepting during the wet season. The decorticating machinery obtained from Mauritius is proving satisfactory. There was an output of 9 tons of graded fibre for the year. This was sent to London for sale by Messrs. Carson & Co., Ltd., and fetched good prices.

Wilting of leaves, which was noticed to a large extent during 1923, was entirely absent this year, as there has been a rather better distribution of rain during the dry season.

Mauritius Hemp.—This crop has made very strong growth, the plants bearing many very large and succulent leaves.

Manilla Hemp.—Attempts to establish this plant have not been successful.

Roselle.—The crops grown this year have failed, and the cause is being investigated.

Cotton.—The cotton trials started last year have been concluded. Three varieties were tried. The acreages and the yields obtained are as follows :—

Variety.	Acreage.	Yield per Acre. lb.
South African	1 ..	607
Durango	$\frac{1}{2}$..	208
Cambodia	$\frac{1}{2}$..	508

The crop suffered to some extent from insect pests ; these were kept under control, but not before an appreciable amount of damage was done. The yield of Durango particularly was affected by water logging of the soil.

Oil Palm.—Planted in 1916, 80 per cent. of the plants are now in bearing. Pruning and cross fertilization trials were undertaken during the year.

Coconuts.—Considerable damage by black beetle and red weevil has been experienced. All vacancies have been supplied. This area is unirrigable, and the land has been ploughed every 3 months and discharrowed monthly.

Kapok.—The plantation is thriving well. Monkeys which have a liking for the terminal buds have done some damage. Trials with the object of determining the advantages of low and high pruning have been begun.

Young Lime Area.—The plantation is making vigorous growth and producing large crops of fruit ; 80 per cent. of the trees are in bearing. The land has been kept cultivated with the disc harrow during the dry months, irrigation being resorted to during the months of June and July. During the rains a cover crop of sun hemp was grown.

Leaf spot was entirely absent, but there was an outbreak of caterpillar pest and also of pink disease. Both attacks were kept under control.

Fruits : Indian Grafted Mangoes.—The tendency for the formation of trees with numerous and leafy branches which produce little or no fruit is pronounced. Trenching and pruning trials are being made.

Oranges.—This plot which was yielding poor results has apparently benefited considerably by the application of a liberal dressing of farmyard manure and bone meal. Good crops are now being obtained, and there is a marked freedom from disease—citrus canker and bleeding disease.

Pineapples.—A good crop of fairly large fruit has been obtained from the old plot which was liberally manured with farmyard manure. This plot is being replaced by a fresh plot of one-fifth acre which is being established. The effects of shade for this crop will be tested.

Plantain.—This gave only a fair crop, as the trees were old and in poor condition. A new plot of one-third of an acre has been opened, and the following varieties have been planted :—kolikudu, suwandal, ash, and sour plantains.

The old plot which will be utilized for growing sugar cane has been green-manured with sun hemp and *Crotalaria muijussi*.

Other Food Crops.—Jack, citrus, lemon, Seville orange, also soursops, guavas, and mulberries are grown and have given fair yields.

Sugar Cane.—Plots of the following varieties have been established :—Striped tanna, red tops, Mauritius, Sealy's seedlings, Sin Nombre, D 117, P 131, P 55.

Algeroba Bean.—Cuttings planted along the bund of the main water channel have come up fairly well. The plants were mulched after the heavy rains.

Bursera.—Cuttings of Delphecinia variety that were planted last year in well-drained land have grown well. This plant is much affected by wet weather conditions.

Coix Lacryma : Job's Tears.—A comparative trial was made—transplanting *vs.* seed sown in rows—in two $\frac{1}{10}$ -acre plots, with the following results :—

	Per Acre. lb.
Transplanted	520
Sown	280

The results obtained from other crops are as follows :—

Crop.	Yield in lb. Per Acre. lb.	Crop.	Yield in lb. Per Acre. lb.
Elephant foot yam ..	6,400	Ground vars. (average) ..	1,300
King yam ..	3,400	Maize, Hickory king ..	813
Sweet potatoes var. ..	16,208	Maize, local ..	2,118
Manioc <i>vs.</i> Singapur. ..	7,640		

Labour.—Some difficulty was experienced during the greater part of the year in securing and maintaining an adequate labour force for the Station owing to various causes. The position is now improving.

EXPERIMENT STATION, KANNIYAI, TRINCOMALEE.

Paddy.—The station is divided into 30 plots each one-tenth acre in extent. During the previous year 5 plots only were used for paddy cultivation. But in 1924, as most of the land was found to be only suitable for paddy and perhaps sugar cane, an additional 13 plots were converted into paddy fields.

Five of the plots were used for paddy manurial experiments in October, 1923. Varietal tests with improved strains grown by the Economic Botanist and also manurial and transplanting trials are being made this season.

Limes.—Two plots have been planted with seedlings of British Guiana limes obtained from the Dry Zone Experiment Station, and are thriving.

Green Manures.—Plots of Daincha, sun hemp, and *Crotalaria striata* were grown.

Plantains.—A collection of 14 varieties has been made, and they are growing in two plots.

Pineapples.—Both Kew and Mauritius are being tried as a catch crop in the lime plots.

Cotton (Durango).—This was sown on ridges in one plot, and the yield was 470 lb. per acre.

Kapok.—Seedlings have been planted along the boundary fence of the station to serve as a profitable live fence. They are making good growth.

Manioc and sweet potatoes have been grown successfully, and distributions of cuttings made to school gardens and cultivators.

Buildings, &c.—A cooly line with two rooms has been built for the permanent coolies, and an iron entrance gate has been erected.

DISTRICT EXPERIMENT STATION, MANNAR.

Provision has been made in the estimates for opening a minor experiment station for dealing with paddy and fodder problems.

Land has been selected for this at Uyilankulam under Giant's Tank.

PADDY SEED FARM: KARACHCHI SCHEME.

A fresh selection of land has been made for this near Paranthan Railway Station. No provision has hitherto been made for opening this Station, and this is a cause of great disappointment to the paddy-growing pioneers.

TOBACCO PURCHASE SCHEME.

There has been a more rapid increase in the cultivation of White Burley tobacco.

The position is shown in the following table:—

Year.	Number of Cultivators.	Total Quantity of Cured Tobacco purchased.	Value.
		lb.	Rs.
1920 ..	2	189	177
1921 ..	7	543	466
1922 ..	7	345	646
1923 ..	26	801	604
1924 ..	66	3,864	3,365

There has been a great demand for seed and nursery plants, both from the Experiment Station and also from eight departmental nurseries which have been established in the tobacco-growing districts for the 1924-25 tobacco season.

It is estimated that the value of this crop will approximate Rs. 25,000.

PADDY MANURIAL TRIALS.

Manurial trials with fish guano and also sulphate of ammonia in Jaffna; with superphosphate and also green leaf in Mannar; and with superphosphate, green leaf, sulphate of ammonia, and also fish guano in Trincomalee were continued.

AGRICULTURAL COMPETITIONS.

The following competitions were held during the year:—

(1) Vegetable gardens	..	..	Vavuniya
(2) Vegetable gardens and paddy green manuring	..	..	Mannar
(3) Vegetable gardens and paddy growing	..	..	Trincomalee
(4) Paddy growing	..	..	Anuradhapura

Interest in these competitions is increasing.

AGRICULTURAL SHOWS.

Two shows were held during the year—One at Chunnakam market for the Valikamam West and North divisions and the other at Trincomalee central market for the Trincomalee District. The former was the first of a series of village shows organized for the Jaffna District and was largely attended.

Arrangements have been made to hold the next village show at Nelliaddy for the Vadamarachi division early in April, 1925.

DEMONSTRATIONS.

Demonstrations with improved ploughs (Meston and Monsoon) and with the zig-zag harrow were given in Jaffna and Vavuniya.

FOOD PRODUCTION COMMITTEE.

Meetings have been held from time to time at Jaffna, Mannar, Vavuniya, Trincomalee, and Anuradhapura.

An attempt made to organize a District Agricultural Committee for Jaffna has failed for the present.

SCHOOL GARDENS.

There were 62 registered school gardens at the end of the year, and of these the following 8 were registered this year:—

J/Naval school.	Mu/Periyapulialankulam school.	M/Palampiddy school.
J/Chempian pattu school.	T/Madawachchiya school.	M/Tharakundu school.
Mu/Periyakumarasankulam school.	T/Tamlegam school.	

The registration of 12 more schools, most of them in the North-Central Province, is held up for want of funds.

A supply of vegetable and flower seeds has been distributed to all schools as usual and also tools as required.

CO-OPERATIVE SOCIETIES.

There were 28 Co-operative Societies at the end of the year including 2 newly registered societies. Particulars of these are given in another report.

FARM SCHOOL, JAFFNA.

The buildings, consisting of Farm School Officer's quarters, hostels, laboratory, lecture rooms, and office, &c., were nearing completion at the end of the year, and arrangements are being made for the equipment of the school.

G. HARBORD,

Divisional Agricultural Officer, Northern Division.

January 31, 1925.

NORTH-WESTERN.

Staff.—At the beginning of the year Mr. V. G. Dharmadasa was appointed Agricultural Instructor, Dandagamuwa. Mr. S. Sinnathurai, Agricultural Instructor, Kuruwita, was transferred to Puttalam on July 1. Mr. A. C. W. Jayawardene is now in charge of the Chilaw District only. The following officers passed the examinations stated against their names :—

Mr. K. S. Arumugam	..	Tamil.
Mr. A. C. W. Jayawardene	..	Sinhalese and Departmental Probationers'.

School Gardens.—There are 91 registered school gardens in this division, of which 4 have been registered during the year, 1 in the Chilaw and 3 in the Kurunegala District. Four school gardens in the Kurunegala District have been recommended for registration in 1925.

Departmental awards have been granted to the following number of school and home gardens :—

		School Gardens.		Home Gardens.
In Kurunegala District	..	24	..	48
In Chilaw-Puttalam District	..	11	..	12

The winners of the Wright prizes for the best cultivation of vegetables were—

In Kurunegala District	{ 1st Prize ..	Nakkawatta Boys' Vernacular School.
	{ 2nd Prize ..	Ehetuwewa Boys' Vernacular School.
In Chilaw-Puttalam District,	1st Prize	Maiyawa Mixed Vernacular School.

The Schneider Challenge Cup, offered for the first time for competition among school gardens in the Chilaw-Puttalam District, has been won by the Kelegama school.

The cultivation of vegetables and curry stuffs has become very popular. As a result of the keen competition for the Wright prize, new varieties of vegetables have been introduced to the gardens. Ornamental and fruit sections have been improved. During the year many school teachers have laid out special sections in their gardens for the cultivation of indigenous medicinal plants. Mulching and manuring of plots were widely practised. Satisfactory crops of cotton were grown at Maiyawa, Kelegama, Duillegoda, Nikawewa, and Borawewa.

Paddy plots have either been acquired or leased out to 12 school gardens, where practical training in manuring, transplanting, and weeding the crop is given to the students. All head teachers have been instructed to keep crop records and crop registers of their gardens, but correct records have been noted and regularly submitted only by the head teachers of the following schools :—

Nakkawatta Boys'.	Weerapokuna.
Nakkawatta Girls'.	Ehetuwewa Boys'.
Meddegama.	

Forty-seven schools have been supplied with garden implements, and 15 with beehives.

Paddy Manurial Trials and Demonstrations.—Two series of manurial trials to compare the relative value of green manures—(a) with or without phosphates; (b) with or without other organic nitrogenous manures—were continued. The first series was conducted at Pussella, Awlegama, Kurunegala, Nikaweratiya, and Kuliyaipitiya, and the second at Pussella, Narammala, and Hettipola.

Demonstration plots in paddy manuring, transplanting, and weeding were conducted at Atamune, Kurunegala, Meddegama, Pilessa, Pussella, and Balalla. Many villagers have seen and adopted these methods of cultivation, and have found them very profitable. From these demonstrations it was quite evident that manuring without weeding gave yields similar to those obtained by weeding alone. The President of the Pussella Co-operative Society has obtained the following yields in his demonstration plots :—

Ploughing twice, broadcasting seed without weeding: 20–25 bushels per acre (seed rate 2 bushels per acre); ploughing thrice, broadcasting seed, and weeding: 34–45 bushels per acre; ploughing thrice, manuring, and transplanting (no weeding): 48–102 bushels per acre.

The Medamulla head teacher has grown a crop of 62 bushels per acre. The cultivation of the pure-line types of paddy from Peradeniya was continued during maha 1923–24 as follows :—

B. 11 at Pannala.	G. 1 at Bogomuwa.
A. 12 at Millewa.	P. 1 at Hettipola.
E. 14 at Kuliyaipitiya.	P. 5 at Narammala.
G. 1 at Pussella.	P. 15 at Awlegama.

New types of paddy received during yala 1924 were grown at—

Mc. 8 at Bogomuwa.	B. F. 20 at Pussella.
De. 19 at Pussella.	

Paddy Competitions. Three paddy-growing competitions were held during maha 1923–24 in the division, and a large number of competitors took part in it :—

- (1) "Wijesekere Gold Medal," offered by Mudaliyar Wijesekere of Kurunegala for the best acre of paddy sown in the North-Western division, was won by Kalu Banda, Korala of Pussella.
- (2) Giratalane korale (Dewamedhi hatpattu) competitions for the best acre of paddy. The winners were Methuruhamy Rs. 25, Mudalihamy Rs. 15, and Ranhamy Rs. 10.
- (3) Yagam pattu (Chilaw District) paddy competition for the best acre of paddy. The winners were M. S. Perera Rs. 25, D. Perera Rs. 15, and W. S. Perera Rs. 10.

Agricultural Shows (Village).—The following shows were held in 1924 :—(a) Weudawili Hatpattu Agricultural Show at Kurunegala on June 21, 1924 ; (b) Dewameddi Hatpattu Agricultural Show at Wariyapola on August 9, 1924 ; and (c) Chilaw Vegetable and Flower Show at Chilaw town on August 23, 1924.

Liberal donations were made to the show funds, and a gold medal and a silver medal awarded by the town residents of Chilaw. Students of vernacular schools were keenly interested in these agricultural shows, and nearly one-half of the vegetable section of the Wariyapola Show contained exhibits from home gardens. The agricultural show at Kurunegala was very successful. A special feature of the Wariyapola Show was the demonstration plots of green manures grown from seeds received for exhibition at the Weuda Show.

Co-operative Societies.—The number of societies in the North-Western division at the end of the year was 5 in Chilaw and Puttalam and 9 in Kurunegala Districts. Of these, 4 were registered in 1924. Meetings have been convened to establish societies at Boyagane, Bogomuwa, Wataraka, Pilessa, Rambodagalle, and Tittawella. The Hiripitiya Society was given a loan of Rs. 1,000. It is intended to confine the activities of the Weuda Society to the Weuda korale and form other societies for each of the other korales of the hatpattu. Nikaweratiya Society, which was recently registered, has collected most of the share capital. The Chilaw and Batalagoda Societies have not called general meetings for the past two years. At present there are no societies in the Dambadeni and Katugampola hatpattus and Kalpitiya division.

Demonstration Garden, Dandagamuwa.—Extent of garden is $1\frac{1}{4}$ acre. A gardener, under the supervision of the Agricultural Instructor, Dandagamuwa, is in charge of it. A very good crop of vegetables was grown during yala 1924. During maha 1924-25 a number of varieties of green manure seeds, received from the Experiment Station, Peradeniya, was sown. Seeds were collected and distributed to villagers. These germinated well and yielded good crops. Applications for seeds have increased. All the visitors were pleased with the cultivation of vegetables and green manuring in the garden. By sale of produce, a sum of Rs. 39.53 was realized and credited to revenue.

Plant Pests.—The coconut caterpillar pest was found on the following estates in Chilaw and Kurunegala Districts :—

Galwewa, near Galmuruwa.
Werahena, near Marawila.
Ambakandawila, near Chilaw.
Iranawila, near Madampe.

Mahayaye } near Makandura.
Issarakele }
Denagamuwa, Polgahawela.

At the outbreak of the attack the infected leaves were cut and burnt. Except on few estates, the pest has totally disappeared.

Severe outbreaks of beetle pests occurred on Ambakandawila estate near Chilaw.

G. E. JAYETILEKE HULUGALLE,
Divisional Agricultural Officer, North-Western Division.

AGRICULTURAL INSTRUCTORS CONTROLLED FROM HEAD OFFICE PENDING FURTHER DECENTRALIZATION.

Western Province.

The following extracts are taken from the report of Mr. D. T. J. Weerasuriya, Agricultural Instructor, Veyangoda :—

Paddy Cultivation.—Much time was spent with the paddy cultivators.

Green Manure.—The application of green manure was not known to goiyas. With many preachings and by distributing literature on the subject induced them to take up green manuring. Now it is becoming a common practice among the cultivators in the district.

Paddy Manurial Experiments.—These suffered severely by flood damage, and the results are inconclusive.

Competitions.—A set of paddy competitions have been arranged in the Siyane korale east, based on the instructions given to them on paddy cultivation.

Ploughing Demonstration.—The implements used in the district for ploughing fields are not satisfactory. A demonstration on ploughing was given at Mottunna with an imported plough. The demonstration was a success. The cultivators were satisfied with the implement, but there is one shortcoming here in the district, i.e., the animals this side are not strong enough to draw a plough of this nature for more than a couple of hours at a time.

Restoration of Elas.—The present condition of certain elas in the district is far from satisfactory. The restoration of these elas is badly felt. Several meetings have been held at Alutgama and Mottunna to discuss the question, and the cultivators came to the conclusion that they would be prepared to bear half of the expense if Government would find the other half.

Co-operative Societies.—Several lectures were delivered at Galgamuwa peruwa.

Coconut Cultivation.—Two cases of bud rot and bleeding disease were prevalent on a coconut land at Heenkenda. I inspected the land and gave instructions on control methods and preventative methods. So far no signs of further spreading has been observed. Two manurial experiments are being carried out on two blocks of land at Mottunna :—

- (1) To determine the value of certain manure mixtures.
- (2) To find remedy to prevent the drooping of the flower stalks.

Province of Sabaragamuwa.

The following extracts are taken from the report of Mr. A. Madanayake, Senior Agricultural Instructor, for the Ratnapura District :—

Changes in the Staff.—Consequent upon the transfer of Mr. S. S. Sinnathurai, Agricultural Instructor, Kuruwiti and Kukulukorales, to Puttalam, Mr. V. L. de Silva, a passed student of School of Tropical Agriculture, was appointed to succeed him.

Cultivation Duties.—The Agricultural Instructors stationed at Balangoda and Godakawela continued to attend to cultivation duties under major irrigation works at Kaltota, Kinchigune, Opanake, Embilipitiya, Hinguru-ara, Tunkame, Maduwanwala, Walalgoda, Beliatta, Malwatta, and Wellawa.

Experimental Plots.—Through the medium of Balangoda and Godakawela experiment plots, gliricidia cuttings, Rhodes grass seed, Coffea Robusta seed, varieties of sweet potato, and cassava were distributed among village cultivators and school and home gardens. Sanction also has been obtained to establish an experimental plot of 5 acres' extent at Kuruwita.

The cotton experiment established at Embilipitiya in Kolonna korale gave fairly satisfactory results, in spite of unfavourable weather conditions, and it is continued again on the same plot. Villagers were encouraged to take up cultivation by their being supplied with seed free of charge, but when permits were granted to those who made applications for Crown chenas, it was found too late to clear jungle for cotton.

A few village cultivators in Mahawalatenna area undertook the cultivation on small scale and the sale of their seed cotton was guaranteed.

Citronella introduced to Embilipitiya from Godakawela experimental plot thrives luxuriantly, where it is looked upon as a new cultivation pregnant with lucrative prospects for those enterprising capitalists who desire growing it on commercial lines.

Paddy Cultivation and Vegetable Garden Competitions.—These competitions organized in previous years were renewed with greater keenness, and awards have been made by the Chairman of the Food Production Committee to the best plots from funds provided by the Department of Agriculture. Further encouragement to vegetable cultivation was given by Mr. T. Walloppillai, Chairman, Urban District Council, Ratnapura, by making an award of Rs. 25 for the best collection of vegetables grown in any plot entered for competition. This was followed by Mudaliyar Jayawardena of the Kachcheri who awarded Rs. 25 to the best vegetable plot within Urban District Council limits.

Paddy Manurial Experiments.—Twelve paddy manurial experiments were conducted during the year under review to determine which manure would be more likely to give better yield in paddy cultivation in this district. Although much damage was caused to crops by floods, the yield of paddy was far in excess of that of unmanured fields. Manuring of fields with green manure and ephos phosphate is now recognized to give the best results in paddy cultivation in areas where these experiments have been carried out.

Varietal Tests of Paddy.—Of the five varieties of paddy grown from selected grains by the Economic Botanist and introduced to this district, two varieties have been adopted as standard varieties and are being cultivated during maha seasons.

Four more varieties of Economic Botanist's paddy were introduced during yala season, of which two varieties gave appreciable results and will be tried again during the next yala season with a view to furthering the introduction. These varietal trials were conducted alongside with paddies of same age to determine which varieties would suit the district better, and to adopt them as standard varieties if they gave higher yields over local strains of paddy.

Paddy Cultivation was supervised by Agricultural Instructors with the co-operation of agricultural headmen. The Agricultural Instructor, Kuruwiti korale, spent most of his time in reporting cases of silting of paddy fields and channels to the Government Agent and getting compensation for damages sustained by cultivators. He also held a few ploughing demonstrations with the Meston plough, but it was found that the local buffaloes were unable to work the plough satisfactorily.

Only a very few cultivators have undertaken improved methods of weeding of fields, filling up vacancies, transplanting, and manuring. The system of land tenure prevailing in the district and speculation on gemming, I may mention, as chief drawbacks in the improvement of paddy cultivation.

Co-operative Societies.—Of these, Godakawela and Kahawatta are doing good work. Balangoda Society has just awakened to its sense of duty. Two new societies have been started in Nawadun korale.

School Gardens.—The number of registered school gardens in Colombo District has been increased, while the number in Ratnapura District remains unchanged for want of funds for registration. There are six gardens in Colombo District and twelve in Ratnapura District awaiting registration.

Special attention was given to the school garden work and the teaching of nature study lessons to pupils. Nineteen school gardens in Ratnapura District and 31 in Colombo District received monetary awards from the Department of Agriculture.

Home Gardens.—Due share of attention has been given to the establishment and care of home gardens. As a result of monetary awards and certificates granted to children during previous years, home garden competition has become very keen.

Forty-six children in Ratnapura District and 56 in Colombo District were recipients of cash prizes and certificates during the year under review.

Bee-keeping in school gardens has been encouraged, and as a consequence many school children and villagers have undertaken agriculture on modern lines.

Eastern Province.

The following extracts are taken from the report of Mr. C. Canagaratnam, Senior Agricultural Instructor, Batticaloa District :—

Paddy.—During the year under review, there were two experiment stations directly in charge of the Agricultural Instructors—one in the north at Illupadichenai and the other in the south at Nindoor—for paddy experiments, such as seed selection, weeding, and manuring, and the advantages of intensive method over the extensive were realized in this district. The result of the intensive method showed an increase of 23 bushels per acre over that of the extensive method, and the increased expenditure did not exceed Rs. 15 over and above that on the extensive method.

It was shown on demonstration plots that 2 bushels of good paddy is enough seed paddy for an acre when the land is carefully prepared, instead of the 3 to 3½ bushels that is sown usually by the cultivators.

The devastation caused by the caterpillars of large tracts of paddy lands with the consequent shortage of seed paddy has led a few of the cultivators for munmari to take to 2 bushels sowing per acre instead of the usual quantity, and there are already 50 acres being sown this year for trial by cultivators at the rate of 2 bushels an acre. There were in all fourteen demonstration plots in addition to the two minor experiments. Out of these, there were plots of 4 acres each, which is a man's economic holding, and these showed that manuring was practical not only on a small scale as is thought by cultivators here, and the results are as follows :—40, 38, 37, and 33 bushels per acre, while the average yields are from 15 to 20 bushels per acre obtained in the tracts where the experiments were carried out.

Individual plant to plant selection in paddy was carried out during the year under review, and no results could be given as these could only be sown this year.

Cotton.—In all there are about 18 acres under cotton cultivation. The damage by field mice and crickets are heavy. The Cambodia seems to be the one best suited to this locality.

Coconuts and Pests.—The services of Mr. M. R. M. Jabaretnam, the Plant Pest Sub-Inspector of the district, were utilized in steps to eradicate the caterpillar pest, and he induced cultivators by peaceful means to adopt the remedial measures over the estates that were attacked. The pest is to all intents and purposes has been got rid of.

Pests.—The caterpillar pests on paddy appeared during the early part of the year under kalapokam lands. The combined and timely efforts of the Pests Inspector and the Superintendent of Cultivation were instrumental in checking the spread and consequent devastation of large acreages of paddy lands.

School Gardens.—There were 26 registered school gardens doing work during the year under review. Seven more school gardens were added to the list of registered schools:—Thampitiya, Kehullela, Damana, Uhanai, Kohombana, Kathiravelli, and Eruville. The following varieties of yams from Jaffna were introduced into the school gardens to see if they would grow:—Kaivalli, kombuvalli, sumambivalli, ulakaivalli, karanavalli, and rajavalli. These seem to be taking to their new environment well. In addition, vernacular instruction in elementary agriculture is given in the following schools:—Eravur main road and Eravur minor road Government schools, once a week. The number of home gardens was 15.

Vegetable Gardens and Agricultural Shows.—There was a vegetable garden competition in the district, the number of competitors being 82. There were two prizes given to each pattu, there being in the district nine pattus. The prizes were Rs. 15 and Rs. 10 respectively.

A prize was instituted for early and good ploughing, and this was earned by V. V. Seenitamby of Punkudahvelli.

There were also three prizes offered for the best competitive paddy plots in Batticaloa North and South respectively. The first two prizes were won by Palanitamby of Kaluthavalai and Namasivayam of Batticaloa.

An agricultural show was held in Batticaloa during the year under review under the patronage of the Government Agent, Eastern Province.

Maha-oya Nursery Block.—1,332 coconut plants and a number of jak, oranges, limes, and pomegranates for planting out in the garden blocks settled by Government Agent, Eastern Province, on the Veddas of Bintenna pattu.

Brito-Babapulle Gold Medal.—Dr. Brito-Babapulle of Colombo having offered a gold medal to the best paddy cultivator in the Eastern Province through the Co-operative Societies, a competition on paddy growing has been instituted in the district, with the view to improve the preparatory tillage. The number of competitors was 49, the number of plots was 50, and the number of societies was 12.

Distribution of Mango Grafts.—There were 80 mango grafts distributed in the district; these were ordered out from Jaffna, being aided by a loan from the paddy bank.

Province of Uva.

The following extracts are taken from the report of Mr. E. W. Dias Bandaranayake, Senior Agricultural Instructor, Province of Uva:—

School Gardens.—All school gardens and several home gardens in the Province were visited during the year and awards given according to their standard of work. New implements were supplied by the Department to schools which required them. Two school gardens have been recommended for registration as they have shown good work for several years.

Agricultural Competitions.—There were several entries for these competitions from the different divisions, which included paddy, vegetable, cotton, sugar cane, and potato. Cash prizes were awarded by the Department to encourage improved methods of cultivation. The judging of these awards was done by the various Rate-mahatmayas and myself. The plots inspected were very satisfactory, and paddy cultivators in particular showed great keenness in transplanting according to the latest method by applying green manure, &c. The prize for potato cultivation was offered by the late Mudaliyar Jainudeen, who had always shown a keen interest in all matters dealing with agriculture.

Paddy Manurial and Seed Selection Experiments.—During the course of the year a 3-acre block of paddy land in Badulla town given over by the late Mudaliyar Jainudeen was worked by the Department. These experiments are being conducted by me. Experiments on seed selection and the growing of different varieties of paddy are being carried out. The objects of the experiments are to get at the pure type of paddy, and also to give the cultivators an opportunity of judging what type would give the best yield, and also how the improved methods can be employed to produce better results. Further experiments in paddy cultivation will be carried out in 1925.

Bibile Gardens.—These gardens are solely in charge of the Agricultural Instructor, Bibile, who is always on the spot. These gardens were inspected by me on several occasions during the year. During October a new section was taken up for the planting of fruit trees and a large area for sugar cane. Other crops experimented with were manioc, sweet potato, cotton, sugar cane, and tobacco. Headmen and cultivators of Bintenna and Wellassa visited the gardens during the year. They were taken round the various plots by the Agricultural Instructor, and instructions were given to them regarding the various methods of cultivation. These gardens have now become a centre for the distribution of seed. A large number of cultivators were supplied with cuttings and seed from the introduced varieties of manioc, sweet potatoes, sugar cane, and tobacco. The cotton grown here showed very good results, one-half acre giving a yield of 4 cwt. 2 qr. 28 lb. Cotton seed were freely distributed, and as many as eighty cultivators were induced to take up cotton cultivation, and the area planted by them ranges from $\frac{1}{4}$ to $1\frac{1}{2}$ acre in extent.

Meegahakiula Experiment Garden.—This garden was opened up in October last for cotton cultivation. I have visited this garden weekly, and judged by to the growth of the plants a very good yield is anticipated. This garden was transferred from Taldena as the climatic conditions appeared to be more suitable here, and as there is plenty of Crown land available in this area it would give those interested in cotton cultivation an opportunity of getting suitable land.

Paddy Manurial Experiment.—Two ranges of fields in Badulla were manured with bone meal, fish guano, and sterilized animal meal, and one plot at Bibile with bone meal. The Bibile field gave an increase of yield, and, on the whole, the manured field was better than the unmanured fields. Out of the different manures tried in Badulla, sterilized animal meal gave the best results. These experiments are to be discontinued owing to those started on the 3-acre block.

Uva Co-operative Society.—This society was taken over by me towards the middle of the year. A number of loans have been given out since, and some work has been done. Owing to its previous slackness a great deal of difficulty is experienced by the office-bearers in getting up meetings, &c.

Uva Agricultural Show.—A show was organized after a period of seventeen years. This was more or less an experiment, as a good deal of the villagers did not have the slightest idea of what an agricultural show was like. The various exhibits sent in were quite satisfactory. Grains, vegetables, live stock, &c., were well competed for. Now that many of the villagers are aware of what the objects of a show are, there is every hope of an improvement in our next effort.

VIII.—THE WORKING OF CO-OPERATIVE SOCIETIES, 1924.

FURTHER progress of the Co-operative Movement can be recorded. New societies have been formed, and the old societies have increased their activities. New areas have been brought under co-operation, and the interest evinced by the general public has been very encouraging in those areas. The working capital of societies has considerably increased with a similar increase in the business they do. Steps have been taken to weed out unsatisfactory societies and to consolidate the work of the other societies. The education imparted by the Co-operative Training Classes has given good results, and the keeping of accounts by office-bearers of societies has improved. There were some changes in the staff. The Registrar proceeded on furlough in June, and Mr. T. Petch acted as Registrar. Mr. S. V. Solomons who had been connected with this branch for 11 years left on transfer in June, and Mr. A. Mandalanayagam succeeded him. Mr. R. R. Samarasinha was appointed Junior Clerk.

GENERAL PROGRESS.

Societies.—Twenty-four societies have been registered during the year under review, and the registration of fourteen societies has been cancelled. Nine of the cancelled societies failed to carry on satisfactory work, and the other five were cancelled in order to allow new societies to be formed in their areas, as the area of their operation proved too large. The number of societies on the register at the end of the year was 239, an increase of 10 over that of the last year.

Members.—The membership was increased to 28,820 from 25,634 the previous year. The increase is 3,186.

Capital.—The paid-up share capital of the societies increased from Rs. 222,441·48 to Rs. 255,083·90. This shows an increase of Rs. 32,642·42 for the year.

Reserve Fund.—At the end of the previous financial year the amount of the Reserve Fund had been Rs. 32,142·88, and this rose to Rs. 44,603·64 at the end of the last financial year, showing an increase of Rs. 12,460·76 for the year.

Loans.—There has been a considerable increase in the number of loans. The amount lent by societies was Rs. 356,060·59. At the end of the year a sum of Rs. 394,248 was outstanding under this item.

PROGRESS IN PROVINCES.

Central Province and Kegalla District.

(Forming the Central Division under an Assistant Registrar.)

Mr. G. E. Jayatilaka Hulugalle, Acting Assistant Registrar, Central Division, reports as follows with regard to the progress in his division. (Mr. S. B. Yatawara, Inspector, Co-operative Societies, is attached to this division):—

Number of Societies.—The number of Co-operative Societies in the Central Division during the last two years was as follows:—

				1923.		1924.
Kandy	..	..	..	22	..	25
Matale	..	..	..	4	..	5
Nuwara Eliya	..	..	..	4	..	4
Kegalla	..	..	..	7	..	11
				37	..	45

The registration of the Nagolla-Hulangamuwa Society in the Matale District, the Walapane Society in the Nuwara Eliya District, and the Beligal Korale Society in the Kegalla District was cancelled during the year. The books of the Nagolla-Hulangamuwa Society have been handed over to Mr. F. van Rooyen, Crown Proctor, Matale, for liquidation; the shareholders of the Walapane Society have been paid back their shares in full with interest at 45 per cent.; and the shareholders of the Beligal Korale Society have also been refunded their shares. Of the new societies, the Kottaligoda and Kadugannawa in the Kandy District and Guralawala in the Matale District were organized by the Inspector of Co-operative Societies, the Walapane-Medapalata in the Nuwara Eliya District by Agricultural Instructor, Mr. G. Madugalle. Mr. P. C. Dedigama, Ratamahatmaya of Beligal korale, has organized five societies in Beligal korale, and Mr. Ellepola, Ratamahatmaya, one in Matale North. The Kandy Tamils Co-operative Store has been worked up entirely by the members.

Membership.—The total number of members holding shares was 4,804 on December 31, 1924. This shows an increase of 1,773 members over the number on list on the same date of the previous year.

Capital.—The working capital of the societies during the past was made up as follows:—

				1923,		1924,	
				Rs.	c.	Rs.	c.
By shares	..	..	..	21,579	28	34,424	81
By deposits	..	..	..	509	62	1,228	35
By loans	..	..	..	2,500	0	5,350	0
				24,588	90	41,003	16

This shows an increase of Rs. 16,414·26 over the previous year. The Kandy Sinhalese Young Mens' Association was granted a loan of Rs. 3,000 by Government for agricultural and trade purposes.

Loans.—A great deal of attention of societies was drawn during the year to overdue loans as this has always been a disquieting feature. During the previous year 27 per cent. of the loans outstanding were overdue, and during 1924 15 per cent. of the outstanding loans were found to be overdue. The members yet fail to realize the importance of regular payment of loans.

Profits and Reserve.—Many of the societies have decided to set aside all their profits during the year to the Reserve Account. Much attention was paid during the year to the regular depositing of the entire amounts due.

Training Classes.—Training classes were held during the year in Kandy, Matale, Kegalla, and Wattagama, and were attended by officers of societies, headmen, school teachers, and Agricultural Instructors. Each of the classes held at Kandy, Matale, and Kegalla lasted three days, and were well attended. There is no doubt that wide interest was awakened by these lectures, and there has been an immediate response in the

shape of applications for the registration of new societies. On the third day of each class, a series of lectures on plant pest and diseases was delivered by Mr. Jardine, Plant Pests Inspector (Central), helped by Mr. Cameron. This new feature aroused much interest and proved useful. The class in Wattagama was organized by the Wattagama Society, and lasted only a day. Four hours were spent in explaining the co-operative movement, and two hours on lectures on plant pests and diseases.

General.—Though the number of societies in the Central Division is gradually increasing, there are yet a few societies that have always been dormant. Among them may be mentioned the Kandyan Association, the Galboda-Kinigoda Korales, the Uda Dumbara, the Uda Gampaha, the Kitulgala, and Kanduaaha Pattu Societies. Suggestions have often been made for the liquidation of the first two of these societies. There are chances of working up the Uda Dumbara and Kitulgala Societies, but little hope lies for the Uda Gampaha and Kanduaaha Pattu Societies. The registration of three more societies in Matale District and one in Nuwara Eliya District is at present under consideration. District Agricultural Committees have been kept in constant touch with the progress of societies in the various districts, and more support has been received from the Ratemahatmayas and Agricultural Instructors.

Southern Province and Kalutara District.

(Forming the Southern Division under an Assistant Registrar.)

Mr. F. Burnett, Assistant Registrar, Southern Division, writes as follows on the work of societies in his division. (Mr. M. Amarasinha, Inspector, Co-operative Societies, is attached to this division):—

General Position.—The societies in the division, as a whole, have done well for the year, showing appreciable progress over last year. Many of the backward societies have improved considerably with the appointment of more energetic and intelligent secretaries as well as by constant supervision and inspection. The managing bodies are conducting their work in a more business-like manner now, and the members are beginning to understand the principles of these societies and to realize the benefits that can be obtained. One great principle that has yet to be learnt is the keeping of a contract. A contract between the society and a member is not generally undertaken by the member seriously enough, with the result that the settlement of loans in particular in some of the societies is very much overdue. Progress of any society must necessarily be slow until the existing dominating lethargic spirit of the members in some of the societies is got rid of and their responsibilities to a society more fully realized.

Distribution.—Two new societies have been registered for the year, and another is receiving the attention of the Registrar for registration. All these three societies are in the Galle District. The total number of registered societies in the division is 72. The following statement shows how the societies are distributed in the different districts as well as their position in the membership and capital taken collectively under each district:—

Name of District.	Number of Societies.	Membership.	Paid-up Capital.		Loans granted during the Year.		Loans Outstanding.	
			Rs.	c.	Rs.	c.	Rs.	c.
Kalutara ..	30 ..	4,767 ..	29,969	0 ..	21,852	1 ..	32,513	83
Galle ..	20 ..	2,623 ..	20,479	0 ..	14,973	9 ..	15,893	28
Matara ..	18 ..	3,287 ..	25,905	0 ⁰⁰ ..	23,309	81 ..	27,233	47
Hambantota ..	4 ..	864 ..	5,967	0 ..	3,121	50 ..	4,202	98
	72	11,541	79,320	0	63,256	41	79,843	56

The above statement shows that the societies in the Matara District are leading proportionately; this is true not only in figures, but also in other respects, for they are more progressive and maintain a very much better standard of work than any others. The Chief Headmen, too, take a keen interest and lend their whole-hearted support to the movement.

New Societies.—The two new societies registered for the year are Galle Christians Society and Telikada Society. Both the societies are progressing satisfactorily; the former is an important society managed by a more business-like managing body. The society is engaged in store work and in the sale of stationery and books. An application for the registration of a third society called the Kumbalwella Co-operative Society is receiving the attention of the Registrar. This society is mainly intended to help the craftsmen of Kumbalwella ward. No societies were cancelled. Arrangements are being made to establish more societies in the division, especially in areas where the distribution of societies is very thin.

Inspection and Organization.—All the societies were inspected, and the accounts audited either by the Assistant Registrar or the Inspector, Co-operative Societies, who also attended a number of general meetings and special meetings. The Agricultural Instructors of the division were also engaged in attending the monthly meetings of societies and in giving other necessary help to the office-bearers in the management of the societies. From results so far shown it is quite evident that inspection of societies at reasonable intervals tends to keep the societies appreciably active and up to date. This also will keep down the volume of requests for instructions, guidance, &c.

It is gratifying to note that the amended by-laws have now been passed by all the societies in the division, though it was by dint of continuous hard work and sustained pressure on the societies that this work was accomplished.

The training classes and conferences were held in April, and these have proved to be the means of rousing public interest and popularizing the movement to some extent. Most of the office-bearers were benefited by the instructions received at these classes.

Financial Assistance from Government.—Loans to the extent of Rs. 3,150 were granted to Matara, Morawaka, Mahagama, and Kosgoda Societies during the year; the amount outstanding on loans given during the previous years totals Rs. 6,600 against ten societies.

Distribution of Manure.—Fifty-two tons and 17 cwt. of bone manure were supplied to sixteen societies through Messrs. Baur & Co. of Colombo, and the total amount spent is Rs. 6,828·39. Three societies obtained manure from outside sources independent of the Registrar to the extent of 40 tons and 5 cwt.—value Rs. 5,280·35. The settlement of manure bills by certain societies was very irregular, and considerable amount of pressure had to be brought to bear on such societies in order to get them to settle their overdue accounts. The total amounts outstanding as overdue to the manure firms is now reduced to Rs. 1,333·03 against seven societies.

Agricultural Competitions.—Several agricultural competitions in paddy and vegetable cultivation were held. The competitions were confined to the members of the Co-operative Societies. In the Kalutara District members of six societies took part, and Rs. 400 was earned by the prize winners. In the Matara District eight societies competed, and the amount earned by prize winners of six societies was Rs. 600. The Gold Medal offered by Dr. Brito-Babapulle for paddy cultivation was won by the Kevitiyagala Society. The competition for this medal was this time confined to societies in the Kalutara District.

*Northern Province and Trincomalee District.**(Forming the Northern Division under an Assistant Registrar.)*

Mr. G. Harbord, Assistant Registrar, Northern Division, reports as follows. (Mr. F. A. Sandrasagara, Inspector, Co-operative Societies, is attached to this division) :—

The number of societies in the Northern Division at the end of the year 1924 was 28. This number does not include 5 societies which were cancelled during the year, namely :—The Tiriya, Pulmuddai, Kuchchavelli, Kudattanai, and the Colombuturai-Poonakari Co-operative Societies.

It includes, however, 2 new societies, namely : The Mullaitivu District and the Trincomalee Public Service Supply Societies.

The distribution of the societies in the division is as follows :—Jaffna District 18, Mannar 5, Mullaitivu 1, Vavuniya 2, and Trincomalee 2.

The following societies did little or no work during the year :—Talaимannar Co-operative Society, the Pesalai Co-operative Society, and the Jaffna Industrial Co-operative Society. The last mentioned is, however, being reorganized.

Special mention may be made of the following societies that have done particularly good work during the year under review :—The Trincomalee District Society, the Pandatarippu Co-operative Society, the Tholpuram-Moolai Co-operative Society, the Karaveddi Co-operative Society, the American Mission Agents' Co-operative Society, and the Tellippalai Co-operative Society.

The applications for registration of the Jaffna Church Mission Co-operative Society and the Chunakam Co-operative Society are being considered, and there is a desire in other parts of the peninsula for the formation of societies, which indicates that the co-operative movement is making steady, if slow, progress.

Government loans totalling Rs. 3,000 were given to two societies: the Mantai North and South Co-operative Society and the Tellippalai Society.

Applications for Government loans from the following societies are being considered :—The Kopay Co-operative Society, the Valvettiturai Co-operative Society, the Tinnavelly Co-operative Society, and the Chavakachcheri Co-operative Society.

The following is a summary of particulars relating to societies in this division at the end of the year :—

Number of members	..	..	..	2,650
				Rs. c.
The paid-up capital	..	..	..	45,305 52
Deposits	..	..	..	19,682 58
Loans given	..	..	..	103,363 90
Reserve Fund	..	..	..	8,278 51
Government loan	..	..	..	3,000 0

As the foregoing figures do not include the figures of the Poonakari Co-operative Grain Bank which deals in paddy, its figures are given below :—

Membership	..	..	..	68
				Bushels. Measures.
Share capital, paddy	..	..	..	569 7
Loans given	..	..	..	59 18
Loans recovered	..	..	..	61 7
Reserve fund	..	..	..	14 7½

The societies in the following districts and provinces are under the direct supervision of the Head Office of the Registrar :—

Colombo District (Western Province).

The registration of 1 society was cancelled, and there are 22 societies in the district. The majority of these societies have made satisfactory progress. The Government Printing Office Co-operative Society has achieved a great measure of success, and has ousted the usurious money lender. The Dakunu-Talangama, Padukka, Udugaha-Meda-Depattu, Boralesgamuwa, Kiriwattuduwa, Udupila, and Galkissa Peruwa Societies have continued to make progress. The Kosgama-Kaluagala Society, Dompe Peruwa Palugama Society, and Gangaboda Pattu of Siyane Korale East Society have done hardly any business during the year. The Seeduwa Society was revived during the year, and its management was taken over by office-bearers selected from the village, and the society is expected to do satisfactory work.

North-Western Province.

Three new societies were registered during the year, and the registration of 1 society was cancelled. The total number of societies at the end of the year was 14. These are distributed as follows :—Kurunegala District 8, Puttalam 2, and Chilaw District 4. The Demala Hatpattu Society, the Nainamadama Society, Hiripitiya Society, and the Wariyapola Societies have held their meetings regularly and made good progress. The Walahapitiya Society in the Chilaw District was registered at the end of the year and has not begun work. The organizers of the Weuda Society have agreed to wind it up and to start several societies in the area. Arrangements have been made to start a number of new societies in the Province in which the Divisional Agricultural Officer and his Agricultural Instructors have done much propaganda work.

Batticaloa District (Eastern Province).

Three new societies have been registered in the district, and the registration of 2 societies has been cancelled. The number of societies in the district at the end of the year was 31. It has been proposed to split up a few more societies so as to form societies with a smaller area of operation. The societies have transacted considerable business during the year with the untiring support of the Government Agent of the Province who spares no pains to make the movement a living force among the cultivators. The organization of new societies purely for the artisans for helping local industries is receiving the consideration of the Government Agent.

North-Central Province.

The number of societies in this Province has been reduced to 8 during the year by the cancellation of the registration of 2 societies which had not started work. Five societies continue to do good work. The Anuradhapura Society will be wound up. There is an appreciable demand for more Co-operative Societies in the Province, and if willing workers are forthcoming a good deal of work can be accomplished for the benefit of the village population.

Province of Uva.

No new societies have been started in this Province. Two of the old societies have been revived, and the Wellawaya Society has been promised the support of the new Ratamahatmaya. The three societies in the Wellassa division continue to do useful and good work under the guidance of Ratamahatmaya of Wellassa, who is the President of the Society.

Ratnapura District (Province of Sabaragamuwa).

Two new societies have been added to the list of societies in the District, and the total number of societies at the end of the year was seven. The Godakawala, Kahawatta, and Balangoda Societies have done good work, and are receiving the support of the respective Ratamahatmayas. The two new societies which were started under the presidency of the Ratamahatmaya, Nawadun korale, have made a very satisfactory beginning. The floods have caused some damage to the paddy crop in the district.

SUPERVISION AND INSPECTION.

More attention has been given to the supervision and inspection of societies by the staff during the year, and as a result the standard of work of societies has been raised. The Agricultural Instructors have assisted the inspecting officers in more than one division in this work.

FINANCIAL ASSISTANCE FROM GOVERNMENT.

Eight societies have been given loans amounting to Rs. 8,400, and 31 societies have repaid their instalments within the year. The amount of repayments was Rs. 3,920.84. At the end of the year 41 loans amounting to Rs. 53,336.80 were outstanding. The amount of loans given to the societies in the Batticaloa District by the Batticaloa Paddy Bank was Rs. 54,966.60.

SUPPLY OF MANURES AND IMPLEMENTS.

The supply of manures and implements was continued during the year. 125 tons 17 cwt. 2 qr. and 4 lb. of manures, costing Rs. 16,926.64, have been supplied through the Registrar to societies. Several other societies obtained their supplies direct. The Elpitiya Society imported mamoties direct from England for the members, and other societies have been supplied implements by local firms.

SUPPLY OF PROVISIONS, &c.

The supply of provisions and other requisites of members through Co-operative Societies is gaining popularity. The Trincomalee Public Service Co-operative Society and the Kandy Tamils Co-operative Supply Society have been organized as supply societies. The Galle Christians Society has started supplying books to its members. The Hambantota Government Servants' Co-operative Society and the Department of Agriculture Co-operative Society have done increased business during the year in this direction.

SUPPLY OF PADDY.

A few more societies have started to deal in paddy, and the societies in Batticaloa have proposed to organize a better form of business in dealing with paddy belonging to their members. The Poonakari Paddy Society has done satisfactory work during the year.

FOOD PRODUCTION.

The Brito-Babapulle Gold Medal for increased yield in the systematic cultivation of paddy was this year won by Mr. D. J. Jayasinha, a member of the Kevitiyagala Society in the Kalutara District. This annual offer goes a fair way to encourage the increased production of food through these societies. The Uruwal Peruwa Society held a show at which vegetables, yams, fruits, and grains grown by members were exhibited. The Henaratgoda Society awarded prizes for the transplanting, weeding, and manuring of paddy. The series of competitions in the cultivation of paddy and vegetables held in the Southern Division has contributed to the increased production of foodstuffs through the societies in the division. The President of Pussella Society has extended his interest to other crops besides paddy. The majority of Batticaloa Societies are interested in the cultivation of paddy, which contributes much to the supply of the staple food of the country.

COTTAGE INDUSTRIES.

The Batticaloa Societies and the Dakunu-Talangama Society are interested in the weaving of cloths. The Galle-Gangaboda Pattu Society, which was responsible for the training of a village boy in weaving, is making arrangements to start weaving. Many societies have helped in the disposal of industrial articles produced by members through the Ceylon Cottage Industries Society. The fair organized by the Secretary, Board of Control, in Kandy during the perahera season helped some of the members to dispose of their goods.

SOCIAL SERVICE.

Many social workers have made inquiries as regards the probable utility of the co-operative movement as a source of help for social service with a view to self-help. The movement started in Kandy to help the rickshaw men has made progress during the year, and two more rickshaws—making a total of five rickshaws—have been provided this year.

CO-OPERATIVE ORDINANCE, RULES, BY-LAWS, &c.

In order to facilitate the establishment of Co-operative Central Agencies, Unions, and Central Banks with the support of individual persons, sections 5 and 6 of the Co-operative Ordinance, No. 34 of 1921, was amended during the year by the passing of the Ordinance No. 21 of 1924. This enables persons other than Co-operative Societies to join in the application for registration of Co-operative Unions of Central Banks. Model by-laws for Co-operative Provident Fund, Paddy Sub-Committee, and Supply of Stores have been prepared and printed for the information of societies.

LIQUIDATION.

The liquidation of the Jaffna Central Society was not complete at the end of the year. Liquidators have been appointed to liquidate the affairs of the Nagolla-Hulangamuwa and Colombuturai-Poonakari Societies.

CO-OPERATIVE EDUCATION AND CONFERENCES.

The annual training classes for the training of secretaries, treasurers, and other honorary workers of Co-operative Societies were conducted this year, and the classes were held at the following centres:—Colombo, Kalutara, Galle, Matara, Kandy, Kegalla, Matale, and Ratnapura. These were well attended, both by the honorary workers and the general public. The conferences held in connection with these classes have been of material help in the dissemination of co-operative principles. The Secretary, Board of Control, attended the Thirteenth Annual Bombay Provincial Co-operative Conference held in Bombay. Lectures on co-operation to the students of the School of Tropical Agriculture have been conducted, and the prize offered for "Co-operation" was again awarded. The vernacular magazines as usual contained literature on co-operation. There was a large demand for leaflets on co-operation. The following leaflets and Registrar's circulars were issued this year:—"Hints on the Working of a Primary Society," "The Reserve Fund;" also copies of the amended Ordinance No. 21 of 1924. The Ceylon Manual on co-operation is in the Press and will be out shortly.

Peradeniya, February 10, 1925.

N. WICKRAMARATNE,
Secretary, Board of Control, Co-operative Societies.

IX.—REPORT ON THE WORK OF BOTANIC GARDENS.

PERADENIYA.

GENERAL IMPROVEMENTS, &C.

MUCH of the river bank bordering the arboretum has been cleared and planted with fodder grasses (chiefly *Panicum maximum* or Guinea grass and *Paspalum virgatum*) for the purpose of providing fodder for the Government draught bulls. The tall "Elephant grass" (*Saccharum procerum*), which had long occupied a portion of the river bank near the ferry to Gannoruwa, has been removed in this process.

The steep bank near the Ferry harbour has been reduced and uniformly sloped, being afterwards planted with fodder grasses as referred to in the preceding paragraph.

A visitors' lavatory has been built in a disused portion of the gravel pit near by.

The area between the new boundary of the Chief Clerk's quarters and that of the Curator's quarters has been cleared, levelled, and turfed. This enabled a further small extension being made to the Conifera collection.

Several improvements to the drives have been carried out. A sharp bend in the East River drive in the arboretum has been reduced to a gentle curve by filling up the steep river bank. The Clove drive has been repaired and improved in gradient.

The temporary lecture hall formerly used for the School of Tropical Agriculture and erected in 1915 behind the store, having been abolished, the concrete floor has been broken up and removed, and the site levelled and planted as a further small extension to the Spice collection.

The iron framework of the building just referred to was purchased by the Gardens from the Ceylon Agricultural Society and re-erected on a portion of the site of the former rockery for the purpose of forming a shelter for palms and ornamental plants attractively arranged for sale to the public.

Certain improvements have been effected in the position of some of the water pipes in the Gardens. Three of the standpipes along the Central drive have been removed to positions on the opposite side of the drive, where they are less conspicuous and do less damage to the road than formerly. The pipe serving the Economic Nursery has been diverted so as to serve the cattle shed *en route* to the latter.

With the completion of the new Chemical Laboratory and the Entomologist's bungalow at the end of the year, a beginning was made to level and turf the grounds around these, but the dry weather had set in before much progress could be made.

CULTIVATION, &C.

The new palmetum, begun in 1914, shows general good progress, many of the palms having reached maturity and are now bearing seeds.

The avenue of *Agathis robusta*, planted in 1918 along the West River drive, has so far made rather irregular growth, some of the plants being 16 feet or more in height, while others are only a third of that size.

Most of the young trees recently planted in the arboretum in their natural orders show good progress.

A collection of seven-named varieties of *Bougainvillea*, received from Mr. R. Erridge, Padukka, has been planted along the furthest end of the Central drive in the arboretum and are all flourishing, one (var. "laterita") having already flowered.

NURSERIES.

The work in both nurseries was actively carried on, and large demands for plants, &c., were met. The requests for plants for Government quarters in all parts of the Island have been unusually numerous.

The school gardens nursery, near the Central Seed Store, has been abolished, the site having proved to be unsuitable, and, being close to the public road, difficult to protect. The work formerly carried on here has now been combined with that of the Economic Nursery.

NOTES OF BOTANICAL INTEREST.

Of the two fruits of the double coconut (*Lodoicea*) planted in the *Lodoicea* avenue in April, 1922, one germinated in January, 1924. At the end of February the first leaf appeared as a small shoot 6 inches high above the ground, and at the end of December this had attained a height of about 5 feet.

The eight palms in the Talipot avenue which flowered in 1922, fruited in 1923 and died in 1924, are now beginning to break down the great, brown, dead panicles, which till now stood erect and clear against the sky, bending over one by one with about 5 feet of the upper tender portion of the stem.

There are still six palms in the avenue which have not yet flowered. These may have been planted as supplies a year or two later than those which have now flowered and died, but the writer can definitely state, with the possible exception of one, they were not planted within the last 40 years. The exception referred to is at least 36 years old, and has not yet begun to show a stem.

It may be of interest to record that of the 15 palms in the Talipot row, planted in 1907, below the Superintendent's office, 3 of those at the lower end, where the soil is deepest and moistest, have each begun to show a stem, that is, about 14 years after planting.

The row of *Ficus elastica* trees, planted in 1914 near the entrance, have made excellent and uniform growth, and have now reached a height of from 30 to 40 feet. They are just beginning to show the characteristic buttressed roots, which have long made this tree a striking feature at Peradeniya.

MISCELLANEOUS.

Davies' Tree.—The site at Katugastota known as “Davies' Tree” and marked by a young tree of *Ficus religiosa* or “Bo Tree” (originated from an older specimen on the same spot), having been made over to Government by Mr. E. G. Simpson, a beginning has been made to clear the ground of weeds and other growths and plant it up in an appropriate manner in commemoration of the massacre of the British garrison in Kandy, which took place here on June 24, 1803. The ground has been cleared of the old cacao and rubber trees, dug 2 to 3 feet deep to get rid of the dense growth of the deep-rooted “Illuk” weed (*Imperata arundinacea*), and afterwards levelled. A number of young plants of the “Na” tree (*Mesua ferrea*) were planted along the boundary to form a distinctive and lasting circle around the site. With the difficulty of access, however, and the want of protection against cattle, &c., it is difficult to give this the supervision required.

In addition to the usual visits of inspection to the Branch Gardens, &c., the Superintendent, by request, paid inspection visits to the grounds of the Royal College, Colombo; General Hospital, Colombo; the Police New Training School, Colombo; the New Boating Club quarters, Colombo; the new Government Bungalow quarters, Mutwal; and the Government Kolonnawa Oil Depôt, advising on improvements, laying out, or the eradication of weeds, &c. He also paid by request a visit to the forest plantations at Nuwara Eliya and Kandapola, and, also with the Director of Agriculture, those at Pattipola; he judged at and served on the Committees of the Nuwara Eliya and Kandy Shows, and judged the Station Gardens from Kandy to Ella in April. He submitted a report on the reorganization of the Railway Station Gardens, wrote a pamphlet on the laying out and management of the latter, and submitted a report on “The Aesthetic Improvement of Kandy and Surroundings.”

Foot-and-Mouth Disease.—An outbreak of this disease occurred in Peradeniya Gardens at the end of July and did not clear up till early in September, during which time the Gardens were treated as in quarantine for all cattle.

METEOROLOGICAL.

Month.	Rainfall for 1924.		Average from 1884 to 1924, inclusive.	
	Inches.	Days.	Inches.	Days.
January	1·03	6	3·86	6
February	3·32	5	1·64	3
March	7·54	14	4·72	7
April	5·54	12	8·25	12
May	3·85	13	5·67	11
June	7·62	17	11·20	17
July	11·56	21	8·46	18
August	9·86	17	6·26	13
September	15·99	22	7·06	15
October	11·00	14	13·61	18
November	6·25	19	10·35	16
December	3·39	9	8·53	12
Total	86·95	169	89·61	148

The highest rainfall in any 24 hours was 4·48 inches registered on September 30.

HENARATGODA GARDENS.

The following extracts are from the report of the Assistant Curator, Mr. K. J. Alex. Sylva :—

NURSERY.

Owing to the exposed situation and the poor soil of the former nursery, a new nursery has been started at a more suitable spot, viz., behind the site of the former house of the conductor. This site has the advantage of being close to the well, and is also partially sheltered and shaded.

FERNERY.

The fernery has been thoroughly renovated and planted with a selection of ferns and shade-loving plants, most of which are labelled. A flight of steps has been made by the Public Works Department at the head of the fernery, and the paths have been repaired and gravelled.

FLOWER GARDEN.

Selected flowering climbers and ornamental trees have been planted on the west end of the flower garden to form a background. A selection of crotons has also been planted here. The old cement tank opposite the plant-house, which had been used for growing aquatics, having become unsatisfactory and irreparable, was broken up and removed.

The collection of pot plants has been overhauled and increased in number, several species of orchids being added.

GARDEN SCHOOL.

In consequence of the transfer of the training class from the gardens, the school building with the block of land attached has been given up to the gardens. The building was converted by the Public Works Department into a structure suitable for garden purposes, including an office, rubber-curing room, seed room, &c., and was occupied early in October.

FRUIT GARDEN.

The plot of land next to the new office has been set apart for fruit trees, and a number of species have now been planted in well-prepared holes.

PALMETUM.

A start has been made to form a palmetum on the higher ground near the office, including the former nursery, and a selection of 32 different species were planted here during the last north-east monsoon.

COCONUT TRIAL PLOT.

The coconuts planted out in 1922 in the low-lying ground at the south end of the garden failed, owing to the frequent overflowing of the river. The mounds have been now raised higher, and along the tops of these selected nuts of five good varieties of coconuts obtained from Gate Mudaliyar A. E. Rajapakse were planted in July.

HEVEA PLOT.

Measures taken to prevent the cross-fertilization of the old No. 2 tree, by enclosing a number of inflorescences in muslin bags, again failed, owing chiefly to the long period of wet weather which prevailed at the time.

DISEASES.

Several diseased trees have, on instructions from the Botanist and Mycologist, been felled and destroyed. No. 39 tree of the old series became affected with disease and died during the latter part of the year.

ROADS AND WALKS.

Owing to the abnormally wet weather experienced during the greater part of the year much damage was caused to the drives and paths. The worst parts were repaired by the Public Works Department and the rest by garden labour.

RAINFALL FOR 1924.

Month.	Inches.	Days.	Month.	Inches.	Days.
January	.. 4.44	.. 6	September	.. 15.37	.. 25
February	.. 2.08	.. 5	October	.. 11.50	.. 16
March	.. 12.93	.. 16	November	.. 17.47	.. 15
April	.. 2.31	.. 10	December	.. 4.40	.. 8
May	.. 15.07	.. 26			
June	.. 13.31	.. 23		114.57	187
July	.. 12.28	.. 25			
August	.. 3.41	.. 12			

The heaviest fall in any 24 hours was 7.67 inches registered on November 7.

HAKGALA GARDENS.

The following is the report of the Acting Curator, Mr. T. H. Parsons :—

GENERAL.

The general upkeep of the gardens has been maintained; beds, borders, and shrubberies have been periodically attended to in the direction of weeding, forking, and manuring, and the lawns regularly mown. Verges have been repaired and renewed where necessary, and the shrubbery in front of cart sheds has been reduced to allow further road space for turning of cars and for a more easy access into the sheds.

The drives and small paths have received regular attention. A thorough overhaul and repair was necessitated early in December owing to rains of a severity rarely experienced here, washing away the larger portion of the metal in upper drive and completely ruining the small paths throughout the gardens. The drainage system of the drives and paths at Hakgala appear unsatisfactory and insufficient to carry off the frequent sudden and heavy falls experienced during November, December, and January.

The rose garden is in good order, gaps having been filled during the year and the bushes pruned in December. A mulching of cattle manure was applied during December after pruning.

The boundary fence is in a dilapidated condition, and little labour has been available for this. Most of the barbed wire is now too old for further use and a stock of new wire is necessitated, all serviceable wire having been utilized on repairs to the northern boundary lately repaired and overhauled. The western and southern boundaries require urgent attention.

The surroundings of the laboratory were tidied up in May last, and the *Aristea* rooted out and burnt. The present position of the cattle shed, with consequent traffic of the cattle to and fro from shed to patana, prevents tidiness in this section to any degree, and further prevents the upkeep of a decent path through this area.

The summer arbor below drive near lower pond has been rebuilt, the surroundings of the Nock Memorial summer arbor tidied up, and the acacias obstructing the view across Uva were cut back. All rustic bridges in fernery and elsewhere were attended to, and the rustic fence below bungalow and in rose garden have been repaired and put in order.

A new set of thermometers has been fixed in the new meteorological shed near laboratory, and readings started from February 15. Readings in both sheds are being taken for a time, so that the difference between the two can be compared.

The labelling of the garden has been continued and now demands a considerable amount of attention, chiefly due to the recent additions of the bulb and rock gardens. Labels for these collections must necessarily be of a small type, and it is found that, however well painted, it is difficult to keep them in a readable condition during the north-east monsoon, and a constant renewal during January and February appears essential.

BULB GARDEN.

The main feature in new works and which has demanded the bulk of the garden's labour to the time of its completion has been the formation of the bulb garden. This was commenced in September of last year, and was completed at the latter end of September of the current year. The position allotted to this was indicated in last year's report and progress up to the end of 1923 recorded.

The area is roughly pear-shaped, being 48 yards in length and 26 yards in width, is surrounded by a retaining wall erected of stones to a height of 3 feet and surmounted by 18 cement pillars to a height of 7 feet above top of wall, with a flight of steps at the western and eastern entrances. The pillars are linked up with iron railings for support of the climbers planted at base of pillars.

The inter-spaces between stones in wall have been planted with Begonias, Sweet Alyssum, Virginian Stocks, Violets, Sedum, Saxifrage, &c. The whole garden has been provided with drains, and the turf for formation of verges, &c., was transported from Sita Eliya.

Beds and borders have been formed and planted with imported bulbs, including Iris, Ixia, Gladioli, Tigridia, Lilium, &c., whilst, in addition to the imports, bulbs of Arum Lily, Crinum, Amaryllis, and Agapanthus have been planted. A pond has been made in centre of garden, a fountain fixed up in centre of pond, and the following placed in pots and put out in the pond:—*Nymphaea stellata*, *Nymphaea lutea*, and *Aponogeton distachyum*.

Porcupine have been very troublesome throughout causing considerable damage to the collection. Watchers were put on and traps set with no result. An offer of a reward for each porcupine caught, however, resulted in one being shot on December 4 and another on the night of December 20, since when the trouble seems to have abated.

ROCK GARDEN.

This portion of the gardens has presented a fine show throughout the year. The heavy rains of November 30, however, caused considerable damage to the whole area, and particularly to the paths and the ponds, the bunds of the latter giving way entirely. All damage to paths and ponds has subsequently been repaired, the overhauling and replanting of the beds being left till more favourable weather is experienced. Fifty packets of rock plant seeds were received from Messrs. Sutton & Sons during the year, and those successfully raised were put out into beds. The following have made a fine show during the year:—*Ionopsidium acule*, *Leucorum aestivum*, *Bellis perennis*, *Saxifraga sarmentosa*, *Lobelia compacta*, *Primula malaccoides*, *P. vulgaris*, *Cyrtanthus intermedius*, *C. Mackenii*, *Viola* "Mauve Queen," *Verbena bonariensis*, *Linaria* "Golden Gem," *Viscaria* vars, *Gypsophylla muralis*, *Erinus alpinus*.

FERNERY.

This section of the gardens has been maintained in good order. Heavy rains at end of November caused the ravines running through fernery to overflow with disastrous results to the whole of the paths. These have, however, during December been taken in hand and repaired, a large portion of the garden labour having compulsorily to be employed on this work. Further planting of ferns, collected locally, have been made, and the whole of the beds mulched with leaf mould obtained from the jungle above gardens. The large tree ferns transplanted to fernery last year did not do at all well, most of them having died during the year.

NURSERIES.

Nursery sales show an improvement, and stocks have in general been maintained. A fairly large demand for Paspalum roots was experienced, some 60,000 roots having been sent out during the year on which a revenue credit of Rs. 330 was obtained.

The nursery sheds are in fair order, but they are temporary structures, and steps are being taken early in the new year to erect permanent sheds from the surplus material obtained from the old nursery sheds recently abolished at the park, Nuwara Eliya.

The question of the removal of the nursery to a new site demands early consideration, the present beds being, because of excessive exposure to wash, entirely deficient of humus, and consists mainly of stones and cabook, with the result that cuttings, though they root after a time, never attain respectable dimensions or have the appearance of health. Better nursery results could be obtained and with a less amount of labour, if a new site with a good soil and a fairly protected position could be found, and such a site is, in my opinion, available by clearing and utilizing the whole area fronting the laboratory, extending from the oak plot on the north side to the new meteorological shed on the south, and from the fruit plot on the east side to the laboratory on the west side. The area available is approximately square, being 62 yards each way, roughly three-quarters of an acre in extent.

A good stock of Cherimoyas has been raised, and these should be large enough for sale by May next. This delightful fruit is so little known and grown up-country that steps should be taken to advertise them specially, as some 500 basket plants are expected to be available for sale.

COLLECTIONS.

The Azaleas planted in the beds of the old succulent site above cart sheds have been given a good dressing of patana soil with a percentage of leaf mould collected from the jungle, and these are both growing and flowering well.

The Berberis collection on same site has also received a liberal dressing of leaf mould, and is making much headway accordingly.

The forest timber experiments above camphor plantation received periodical attention, but the growth of the plants, on the whole, is uneven, the Casuarinas and Eucalyptus making rapid and robust growth, whilst Pinus and Juniperus are still small. The Acacias and Hakea are healthy, and have put on good growth of late.

Thirty rooted tea cuttings were transplanted from nursery beds to a vacant section to the above plot on March 1. Fifteen died and were replanted, but 11 more have succumbed to date.

NEW IMPROVEMENTS.

On the completion of the Bulb garden in September last, which had up to that time absorbed most of the labour with resultant arrears in the routine work of the garden, a thorough overhaul of the ornamental section of the gardens was undertaken, and arrears brought up to date by mid-December. A commencement was then made on the improvement of the upper drive just above the large upper pond in the direction of straightening out the kink and sharp turn of the existing drive. The line for the new road demanded a cutting through the steep bank and the erection of a strong retaining wall, the removal of three old Cupressus trees, and the transfer of a few tree ferns. Sufficient trees are retained to present a furnished appearance to this area, and the work is proceeding, the completion being anticipated at the end of January.

METEOROLOGICAL.

The number of inches of rain recorded during the year was 98·69 falling on 226 days, compared to 117·16 inches on 253 days during 1923.

The wettest month was October with a rainfall of 13·71 inches, and the driest month February with 2·45 inches.

The highest temperature in the sun's rays was 151·2 on October 13, compared to 154·3 on October 13 of the previous year.

The lowest temperature on the grass was 38·4 on February 23, compared to 39·3 on February 6 of the previous year.

The Acting Curator proceeded to Batticaloa in October to report on the suitability of the soil of Mantivu Island for fruit and vegetable growing.

A report was also prepared and forwarded to Chairman, Board of Improvement, Nuwara Eliya, on draining of swamp areas, &c.

NUWARA ELIYA GARDEN.

The Acting Curator reports :—

Routine operations have been satisfactorily carried out during the year. The worn-out turf on lawn near *Spiræa* hedge has been removed, and the depressions filled in and returfed.

Five large and 15 small beds have been made near the Maze and Peace Memorial tree, and planted up with 28 kinds of *Gladioli* received from Messrs. Sutton & Sons, Reading.

All drives and paths have been kept in order, the gravelling and sanding of these being carried out in March and April last.

The plant sheds in old nursery site have been removed, the site being levelled and the bank along the path turfed. The main area should be allowed to grass itself owing to the heavy expense of turf carting. The area is in fact doing so quite satisfactorily. The old standpipe here has been removed to the back of the long border skirting main drive, and 100 feet of 1-in. piping was obtained from the Chairman, Board of Improvement, for the purpose. A large barrel was obtained from the District Engineer, Nuwara Eliya, and sunk in the border to answer the purpose of a tank, funds not being available for the erection of a permanent cement tank.

A percentage of the demolished sheds was erected on a new site selected and prepared between the upper drive and Park road, and three sheds have been erected here, the balance material being distributed between the Queen's Cottage and Hakgala Gardens. A wire netting fence round the new site has been erected, and a row of *Cupressus* has been planted to form a screen between the sheds and Park road.

The surroundings of the War Memorial have been kept in good order, all gaps in the live fence having been replanted and the lawns regularly mown.

QUEEN'S COTTAGE GARDEN.

The Acting Curator, Hakgala, reports :—

The general condition of the garden and grounds show improvement. The ponds have been kept clear and the bunds in repair.

In order to maintain the improvement of the flower garden a larger proportion of annuals was obtained. A better arrangement of the quantities of single types required should be secured, as on this occasion numerous kinds have been received, but not sufficient of many of the types and of the one kind to make a respectable show. Some of the beds demanding distinct colours have to be planted with mixed sorts, owing to many of the seed packets (chiefly Ryder's) containing only sufficient seed to raise 10 to 12 seedlings.

The supply of vegetables have, on the whole, been fair, but shortages are experienced during the months when the monsoons are most prevalent.

Hare and wild pig have been troublesome on and off throughout the year, and it is difficult to keep the latter out, as wire netting proves no obstacle to them.

Many of the old *Acacia melanoxylon* stumps have been removed, and the resulting fuel removed to the bungalow.

The levelling of the bank above the Ramboda entrance was undertaken and completed during the period under review, and the short bank and verge returfed. The slopes have been sown with seed of mixed Shirley Poppy.

CUDDESDON GARDEN.

The general upkeep of the gardens has been maintained. The section in the swamp opened last year has been kept in order, and is now fairly well established. The erection of a permanent shed for seed raising is required, as at present the annual seedlings required have to be obtained from the surplus stocks of Hakgala and Queen's Cottage.

The vegetable garden is in good order and well stocked, though shortages were experienced during the middle of the monsoons.

Complaints by the occupant of the inefficiency of the gardener in charge were reported, and steps have been taken to replace him early in the new year.

THE GOVERNOR'S AND COLONIAL SECRETARY'S GARDENS.

QUEEN'S HOUSE GARDEN, COLOMBO.

The addition of a portion from the adjoining Gordon Gardens, as referred to in last year's report, has enabled further improvements to be carried out in the new portion. The fountain has been enclosed by a structure of iron framework to form a plant-house, which has already been partly filled with a selection of pot plants.

A few more of the less desirable trees in the garden have been removed, with good results to the general effect.

A fine display of *Spathoglottis* orchids in flower has been maintained throughout the greater part of the year, and the collection of ferns in pots has been increased.

TEMPLE TREES GARDEN, COLOMBO.

Several minor improvements have been carried out here. A row of *Plumeria rubra*, the crimson "Temple Tree," has been established along the front boundary, and a row of "pink" and "white" Oleanders (*Nerium Oleander*) formed along the boundary on the south side. The flower beds, especially those with Cannas, have continued to make a fine display. The sea-breeze, unfortunately, has checked the growth of the Flamboyante trees (*Poinciana regia*) planted along the drive to form an avenue.

KING'S PAVILION GARDEN, KANDY.

The attractive condition of the garden and grounds has, as usual, been well maintained, but the reduction in funds, as referred to in last year's report, has prevented any improvements to be undertaken. The fine lawns and shrubbery borders, which are a special feature here, have been kept in good condition.

THE LODGE GARDEN, KANDY.

The upkeep of this garden has been satisfactorily carried on, but a reduction of funds in favour of the gardens in Colombo and Nuwara Eliya has restricted work to general routine.

H. F. MACMILLAN,
Superintendent of Botanic Gardens.

February 1, 1925.

X.—REPORT OF THE WORK OF THE PUBLICATION DEPOT AND CENTRAL SEED STORE.

THE demands from estates for supplies continue to increase, while small cultivators seem eager to try various new kinds introduced.

Owing to variations in climatic conditions in different districts, the demands on the store have become a matter of daily routine, rendering it necessary to make available fresh supplies to meet the requirements, irrespective of the main seasons usually attached to the south-west and north-east monsoons.

Every endeavour is made to satisfy the public demand, and supplies are regularly obtained according to requirements from well-known sources. These include Messrs. Carter & Sons (England), Vilmorin Andrieux & Co. (France), W. Atlee Burpee (Philadelphia), Brunnings (Australia), Sutton & Sons, Yokohama Nursery (Japan), and Government Farms abroad. In addition to the above, supplies have been drawn also from Java, Federated Malay States, Bangalore, Salem, Mysore, Madras, Poona, Coimbatore, &c.

All varieties of seeds immediately on receipt are tested, and unsatisfactory lots discarded. Only those giving satisfactory germination percentages are issued to applicants, who have, therefore, no cause for complaint. The test work has become so extensive that an additional seed tester had to be imported from England. A leaflet on sowing and preserving seed issued during the year is much appreciated and sought after.

30,717 packets of vegetable, flower, and curyrstuffs seeds were issued during the year, as compared with 24,581 during the preceding year.

The demand for paddy was very limited owing to normal conditions; while the quantity of cotton seed issued was only 5,290 lb., as against 15,413 lb. issued during the previous year, because the Divisional Agricultural Officer, Southern, undertook the whole of the seed distribution in the Hambantota District.

Green manure and cover crop cuttings and seeds were in large demand, especially the new varieties which came into prominent notice in the press. These included *Vigna Oligosperma*, *Pueraria Javanica*, *Centrosema pubescens*, *Centrosema Plumieri*, Soya bean, *Gliricidia maculata*, Hubam Clover, &c.

A fair demand existed for Madras thorn; and assistance in procuring tea seed was rendered to several inquirers.

Grafted plants were available only one season, while a fair demand existed for fruit plants and seeds and pineapple suckers. A very small number of plantain suckers was also in demand.

Foreign countries to which supplies were sent include Assam, India, Burma, Sierra Leone, Queensland, Straits Settlements, Sarawak, Seychelles, Federated Malay States, Australia, United States Malaya.

The following is a summary of the distribution :—

Variety.	Seeds, &c.			
	Bushels.	Pounds.	Packets.	Number.
Paddy and grains ..	127 ..	571½ ..	— ..	—
Maize ..	1¼ ..	11¼ ..	— ..	—
Green manure seeds, &c. ..	— ..	3,588½ ..	— ..	—
Groundnuts ..	— ..	584½ ..	— ..	—
Coffee seeds ..	— ..	5 ..	— ..	—
Artichoke ..	— ..	72 ..	— ..	—
Java kapok ..	— ..	2 ..	— ..	—
Papaw ..	— ..	2½ ..	— ..	—
Vegetable seeds ..	— ..	81¼ ..	26,600 ..	—
Flower seeds ..	— ..	— ..	3,989 ..	—
Curyrstuffs ..	— ..	— ..	128 ..	—
Suckers and cuttings ..	— ..	— ..	— ..	2,548
Jak seeds ..	— ..	3 ..	— ..	8,505
Lunumidella seeds ..	— ..	10 ..	— ..	—
Oil palm seeds ..	— ..	— ..	— ..	8,000
Cardamom rhizomes ..	— ..	— ..	— ..	200
Coconuts ..	— ..	— ..	— ..	545
Fruit tree seeds ..	— ..	— ..	— ..	300
Grafted plants ..	— ..	— ..	— ..	382
<i>Hibiscus sabdariffa</i> : var.				
<i>Altissima</i> ..	— ..	6 ..	— ..	—
Madras thorn ..	— ..	77½ ..	— ..	—
Hubam Clover ..	— ..	50½ ..	— ..	—
<i>Vigna Oligosperma</i> ..	— ..	142½ ..	— ..	—
Tobacco ..	— ..	— ..	— ..	—
Tea seeds ..	— ..	624 ..	— ..	—
Adlay ..	— ..	14 ..	— ..	—
Soya bean seeds ..	8 ..	8½ ..	— ..	—
Cotton seeds ..	— ..	840½ ..	— ..	—
Cotton seeds (Watts L. Staple) ..	— ..	626 ..	— ..	—
Cotton seeds (Zululand Hybrid) ..	— ..	2,196½ ..	— ..	—
Cotton seeds (Durango) ..	— ..	1,008 ..	— ..	—
Cotton seeds (Durango American) ..	— ..	639 ..	— ..	—
Total ..	136¼	10,652	30,717	20,480

PUBLICATIONS.

The increase in the number of subscribers to the "Tropical Agriculturist" was normal, while most of the subscribers are also subscribing to Bulletins and Leaflets as well.

The arrangement *re* advertising rights remain the same, the Ceylon Advertising and General Publicity Co., Ltd., of Chatham street, acting as Agents.

The number of subscribers to the "Govikam Sangarawa" has considerably increased.

A few copies of the special Centenary Edition of the Royal Botanic Gardens, Peradeniya, published in aid of the Trimen Memorial Fund, are still available at Rs. 5 per copy.

Below is given a list of publications available at this Depot :—

Title.	Annual Subscription.		Single Copy.	
	Local. Rs. c.	Foreign. Rs. c.	Local. Rs. c.	Foreign. Rs. c.
"Tropical Agriculturist"	10 0	15 0	1 0	1 25
Bulletins	1 0	2 50	0 15	0 40
Leaflets	—	—	0 5	0 15
Annals	2 50	6 0	—	—
Circulars	—	—	0 15	0 40
"Govikam Sangarawa"	0 50	1 0	0 6	0 15
"Kamat Tholil Velakkam"	0 50	1 0	0 6	0 15

FINANCE.

During the financial year under review (1923-24) the receipts amounted to Rs. 26,660·95 :—

	Rs.	c.
By sale of publications	18,094	55
By sale of seeds and plants	8,566	40
Total	26,660	95

In addition, seeds of a value of Rs. 3,884·37 were supplied to School Gardens and to village cultivators.

J. S. DE SILVA,
Manager, Publication Depot and Central Seed Store.